```
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
```

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries Sequence: Run on: OM nucleic - nucleic search, using sw model Database : Minimum DB seq length: 0
Maximum DB seq length: 2000000000 Scoring table: Title: Perfect score: Total number of hits satisfying chosen parameters: Searched: IDENTITY NUC
Gapop 10.0 , Gapext 1.0 July 31, 2004, 07:39:00; Search time 7452 Seconds (without alignments)
16919.604 Million cell updates/sec 3470272 seqs, 21671516995 residues US-09-700-712A-1 2909 1 gagaaggtttgttatgcctc....cagcgaaatcggcgctgcag 2909 GenEmbl: * gbook sales and gb_ba:* gb_htg:* em_sts:*
em_vi:*
em_vi:*
em_htg_hum:*
em_htg_inv:*
em_htg_other:*
em_htg_other:*
em_htg_pln:*
em_htg_pln:*
em_htg_vrt:*
em_htg_vrt:*
em_htg_vrt:*
em_htg_vrt:*
em_htgo_num:* gb_om:* em_pat:*
em_ph:*
em_pl:* em_on: *
em_ov: * em_hum:*
em_in:* em_mu:* em_fun:* 6940544

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

;	7 1	4. 4	42		4		ი 3	u (٠.	(וני		ט נו		N	c 28	2	N	c 25	N	22	2	2 !	2 !	19	C 1.		15	щ		12	11	0		0	Ф.	,,,		w		! ! !	. No.	Result	
		248.	248.2	256.	25	25			<u>ي</u> ا	2 1	2 :	2 1		2 2		3 273	278	278	280	280	280	292	314		35.5	410.	744.		775.	814.	83	841.4	10103	1052.		1216.		1390.	287	290		Ř	•••	
	ء د د	•		•	•	•	• •	8 .				٥.	•		9.4	9.4		•		9.6		0	10.8	11.3	12.1	14.9 14.1		•	6		œ :	ໝ ປ	י פ	36.2			2	.7	98.	0	100.0	-	Query	æ
	30100	201006	876	301311	230050	879	21583	1473	71128	292906	12943	10405	210612	305335	266658	10242	349980	342905	208050	10029	10474	80	304558	_	304250	175005	, –	11545	1893	10719	838	, i	ŝ	298900	1591	1236	1222	1410	9931	2909	2909	Lengt		
ı	. د	ــ د	• 0			6		,		ر س											س	ი 1			 ,	ר ע	۰ ۵	, 1		ب	σ (א עכ⊦	۰,						L		- ;	DB		
	AE017212	BCOLGT	AX188981	AE016843	AL627277	AR386236	AE008838	STYLGTX	ECU29581	AE016988	AE015298	AE000366	AE016875	AR377359	AP002563	AE005511	AX770908	BX571861	AJ414144	AE013918	AE004472	AR139598	AE017151	AE015577	BX294152	AB01/133	AR274513_09	,	AF064791	AE006043	AX009482	AX020429	ABU16/98	AP005074	VCAJ10968	AY143429	AX009483	VCTHYAG	AE004153	9	VCH6514	ID		
	٠,	OIZZBY BECHERICHIA	81 Sequence		Salmonel	6 Seguenc	w	L13259 Salmonella	M.	AE016988 Shigella	Shigella	א עב	,, ,	AR377359 Sequence	, ω		æ	BX571861 Photorhab		ω.		8 Sequence		7 Shewanel	BX294152 Pirellula	AR377276 Segmence	ם כ	emophilu	w	Pasteur		AX020429 Sequence	ATOLIO	4 Vibrio	Vibrio	9 Vibrio	83	٤		AX009481 Sequence	AJ006514 Vibrio ch	cription	•	

ALIGNMENTS

	AUTHORS C	REFERENCE 1	۷	ш	ORGANISM V	SOURCE V	r.t	KEYWORDS 1	VERSION A	ACCESSION A	DEFINITION V	LOCUS V	VCH6514	RESULT 1	
Characterisation of the lgt/thyA locus from Vibrio cholerae	arlin,N.I.A., Nilsson,A., Todorovic,M., Holmqren,J. and Lebens,M.		Vibrionaceae; Vibrio.	Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;	Vibrio cholerae	Vibrio cholerae	thymidylate synthetase.	lgt gene; prolipoprotein diacylglyceryl transferase; thyA;	AJ006514.1 GI:3201563	AJ006514	Vibrio cholerae lgt and thyA genes.	VCH6514 2909 bp DNA linear BCT 05-JUN-1998			

8	Qγ Βυ	Query Match Best Local Matches 290	ORIGIN	stem	vari				C C	RBS	gene	-10	- 35	gene			CDS	gene	FEATURES source	AUTHORS TITLE JOURNAL	JOURNAL
61 TTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTT	1 GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTTCCCAATATTGACCCCGTATTGTT	/ Match 100.0%; Score 2909; DB 1; Length 2909 Local Similarity 100.0%; Pred. No. 0; nes 2909; Conservative 0; Mismatches 0; Indels 0	/gene="thyA"	codon" /replace="tag" em_loop 17251765	variation 10821084 /gene="thyA" /note="In trimethoprim resistant mutant JS1569	DMGRYVGVQCRAWAKEDGGHIDOLKKIVDDLGRGVDDBGEILAFWINGCLRE MYSHHFSLLGDTLYLNSTQRSCDVPLGLNFNMVQVYVFLALMAQITGKKPGLAYHKI NAHIYODQLELMRDVQLKREPFPAPQFHINPKIKTLQDLETMVTLDDFDVTGYQFHD AHHYODQLELMRDVQLKREPFPAPQFHINPKIKTLQDLETMVTLDDFDVTGYQFHD	/db_xref="GOA:066108" /db_xref="SWISS-PROT:066108" /translation="MKQYLDLCQRIVDQGVWVENERTGKRCLT"	/transl_table=11 /product="tbymidylate synthetase" /protein_id="CAA07073.1" /db_xraf="GI.3201565"			~ L.	_signal	/gene=		/db_xref="SPTREMBL:087077" /db_xref="SPTREMBL:087077" /translation="MPQGYLQFPNIDPVLFSIGPLAVRWYGLM" /translation="MPQGYLQFPNIDPVLFSIGPLAVRWYGLM" ADRAGSGMTREQVSDLLFAGFLGVVIGGRVGYVIFYNPDLFLAI	/product="prolipoprotein diacylglyceryl transferase" /protein_id="CAA07072.1" /protein_id="CAA07072.1" /db_xref="nGI:3201564" /db_xref="nGB.087077"			rce Location/Qualifiers 1. 2909 /organism="Vibrio cholerae" /mol type="genomic DNA"	Carlin, N. Direct Su Submitted	
	60	; Gaps 0;	Ov Db	Qy	Qy Db	TILDDEDVTGYQEHDP Db	QY VINADLTYDVGNNQF Db	עס פנ	Db Db	, Db	Q	Db	Qy	SVSGLFLAGYGTERE QY SLYQDRVAAK" Db	CLUGFLFAMWLANRR DELYLFKVWTGGMSF Db	nsferase" Qy	Qy Db	סע ס	עס מם	Qy Molecular Db	מם
1141 GGATGACATGGGGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTGG 1200		021 GCTCGGCTATATTCGTGGTTACGATAATGCGGCGGGTTTTCGCCAATTAGGTACCAAAGGTGA	961 CAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAAGCTGCCGTAGCCGAGTT 1020 1021 GCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAAC 1080	61 CAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAGTT	901 ACGAACGGGCAAGCGTTGTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCAA 960 	841 GAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATGA 900 	781 TTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAGGT 840	721 CATTICAATGGGCAAATCCICTCCTIACCIAITGGTGATCATCGGTATTITGATGATGGT 780 	61 CCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTT		01 TGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATT 6		541 ACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTAT 600	481 AACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTC 540	421 ATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGT 480	361 TGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCC 420	301 GACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTA 360	241 TGTGATCTTCTACAATTTTGATCTGTTCCTTGCTGACCCTCTTTATTTA		121 TGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCA 180	

Ś

뭐

8 8 8 8

ঠ 🖁 ঠ

밁

101 GCCCACGAGAGAACCATTAGGCTGGTTGGTCGATTAGGCTGGATTAGGCTGGAGCAACAACAATAACCGTGTAGTGGGCCTCGAGCATTAGGCTGTAGTGGGCCTCGGAGCAATACCGTGTAGTGGGCCTCGGAGCAATACCGTGTAGTGAGCTCTCATCAGTTTTGATCAGTCTGAGCCAACCATCAAACTCTTCATCAGTTTTGATTTGATTTTGATCAGTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTTGATCAGTTTTGATCAGTTTTTGATCAGTTTTTGATCAGTTTTGATCAGTTTTGATCAGTTTTTGATCAGTCAG	GAGGAAACACGGCAAACTCACCAGAGACAGCGGTT	801 AATGO 801 AATGO 861 CTTAC 861 CTTAC 921 AATAC 921 AATAC	21 CACTTTGGATGATTTTGACGTCACCGGATATC 21 CACTTTGGATGATTTTGACGTCACCGGATATC 21 CACTTTGGATGATTTTTGACGTCACCGGATATC 81 TTCAGTCTAATCCCGTATTCAGGCGGTATGGC 81 TTCAGTCTAATCCCGTATTCAGGCGGTATGGC 81 TTCAGTCTAATCCCGTATTCAGGCGGTATGGC 81 TTCAGTCTGAGTCGGAGCTTTTTTTATACAGATGAT 41 CGAAGGTCGGGAGCTTTTTTTTATACAGATGAT 41 CGAAGGTCGGGAGCTTTTTTTTATACAGATGAT 41 CGAAGGTCGGGAGCTTTTTTTTATACAGATGAT	.441 .441 .501 .501 .561	261 TGAAA 261 TGAAA 261 TGAAA 321 GTACA 321 GTACA 321 GTACA 321 GTACA 321 GTACA 321 GTACA
TGAAGATTGAACTAATACCGTAAC 2160 SCCAATCGCATTTTGTAGAATTTC 2220 SCCAATCGCATTTTGTAGAATTTC 2220 SCCAATCGCATTTTGTAGAATTTC 2220 SCCAATCACCGTAATGGCGACGAA 2280 SCCCATCACCGTAATGGCGACGAA 2280	CGGCGAGCAGAGCAGTÀATAC	CCAPTTI	CAATACCGTT 168	GTCAATGCGCA 150	AGCCGTGGCGTTGATGACCGAGG 1260 ATGGGGTGTTTGCGCCCTTGCAT 1320 ATGGGTGTTTGCGCCCTTGCAT 1320 ATGGGGTGTTTGCGCCCTTGCAT 1320 TATCTCAACAGTACTCAGCGTTC 1380 TATCTCAACAGTACTCAGCGTTC 1380 CAGGTTTATGTGTTCCTTGCGCT 1440 CAGGTTTATGTGTTTCCTTGCGCT 1440 CAGGTTTATGTGTTTCCTTGCGCT 1440

밁

δ

8 8 8 8

δ

밁

밁

5 B

δ

밁

ঠ

Ś

Ś

음 성 음

Query Match 100.0%; Score 2909; Best Local Similarity 100.0%; Pred. No. 0; Matches 2909; Conservative 0; Mismatches

DB

Length Indels

2909;

0, 6,

0

Gaps

0;

성 유

밁

음 성 음

Ś

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                 RESULT 2
AX009481
LOCUS
                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                    $
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                     FEATURES
                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2401
                                                                                                                                                                                                                                                                                                                2881
                                                                                                                                                                                                                                                                                                                                       2881
                                                                                                                                                                                                                                                                                                                                                                   2821
                                                                                                                                                                                                                                                                                                                                                                                                                   2761
                                                                                                                                                                                                                                                                                                                                                                                                                                             2761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2281
                                                                                                                                                                                                         AX009481
Sequence 1 1
AX009481
AX009481.1
                                             Carlin,N. and Lebens,M.R.
Method of producing thy ac-setrains
strains and their use
Patent: WO 9961634-A 1 02-DEC-1999;
CARLIN NILS (SE); SBL VACCIN AB. (SE)
Location/Qualifiers
                                                                                                                                           Vibrio cholerae
Vibrio cholerae
Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;
Vibrionaceae; Vibrio.
                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGAC
                                                                                                                                                                                                                                                                                                                TTTCGTGGTCAGCGAAATCGGCGCTGCAG
                                                                                                                                                                                                                                                                                                                             TTTCGTGGTCAGCGAAATCGGCGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                   CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCAACGTAGGCC
                                                                                                                                                                                                                                                                                                                                                                               CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTTGCCCCAACGTAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                    AGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAAACCGCTGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGGTTTCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGGTTTCAACCGGTAACCCACCGGCAACAACAATAATAGAAGTCACCGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAGCCAGTGTGAGACTTTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCATGCTCATATCGCCAGTCGCAAGCAGAGCGAAACGAGCCAGTGTGAGACTTTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATGGTCGCAATACCCAATACGATAAGTGCGACACCACCGAAAGTATTACCCAATACCGA
/organism="Vibrio cholerae"
/mol_type="unassigned DNA"
/db_xref="taxon:666"
                                                                                                                                                                                                                                  from
                                      .2909
                                                                                                                                                                                                           GI:9996766
                                                                                                                                                                                                                                   Patent
                                                                                                                                                                                                                                   2909 bp
WO9961634.
                                                                AB. (SE); LEBENS MICHAEL R
                                                                                                                                                                                                                                                                                                                2909
                                                                                                                                                                                                                                                                                                                                        2909
                                                                                                                                                                                                                                                 DNA
                                                                                                     о
f
                                                                                                     vibrio
                                                                                                                                                                                                                                                linear
                                                                                                    cholerae,
                                                                                                                                                                                                                                                 PAT 06-SEP-2000
                                                                (SE)
                                                                                                       such
                                                                                                                                                                                                                                                                                                                                                                   2880
                                                                                                                                                                                                                                                                                                                                                                                            2880
                                                                                                                                                                                                                                                                                                                                                                                                                    2820
                                                                                                                                                                                                                                                                                                                                                                                                                                             2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2340
```

B & B & B &

2161 CACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTC 2220	TCAACAATCCTTACCGTAAAGGTGA 1140	081	4
1 GCCACGAGAGCATTAGGCTGGTTGTTGGTCGATGAGATTGACTAATACCGTAAC 	ATTITCGCCAATTAGGTACCAAAAC 1080	1 11	ਲ ≺
ASTGCCAATGTTGCCACCTAAGGTAAATGGGTACATTTCAGCACTTTCAGCACGCCAGA	1020	961 CAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAGTT	ਲੇ ਵ
CAGAGCAAACACGGCAAACTICACCAGAGACAGACGGCGGTTGCGGCGAGCAGAGCA	САА 960 САА 960	901 ACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGG 	₽ ₹
AATACCGTAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAAGTGCACCAGCGCAATTTG	900	841 GAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATGA	8 4
CTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGGCACTTCGCGTAAGAAAGG	840	81	א ע
1801 AATGCTGCCGGGGATGACGACAAACACACCCAATAAGTAAG	Oy 		в 4
CGAAGGTCGGGAGCTTTTTTTATACAGATGATGCTTTAACGCTTAAGCGGTTAGGGCAAG	720	661 CCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTT	ያ ሩ
TICAGICIAAICCCGIAITCAGGCGGIAIGGCIIGAIGGGIITAIAAAAAAAAAA	660	601 TGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATT	ъ ч
21 CACITICUAL GALLI GALLI CACCOGATA COCCOGNO ILCOCOTTO ATA TA TA A A A A A A COCCOCCO	600	541 ACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTAT	8 4
AGCGCCTCAGTTTCAATGACGTCAAAGATTAAAACACTGCAGATTTGGAAACATTGGGTTAGCACGATTTGGAAACACTTGGGTTAGCAGATTTGGAAACACTTGGGTTAGCAGATTTGGAAACACTTGGGTTAGCAGATTTGGAAACACTTGGGTTAGCAGATTTGGAAACACTTGGGTTAGCAAGATTAAAAACACTTGAATTAAAACACTTGGAATTCAATTAGAATTAGTTAG	540	481 AACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCCCATCCTTC	8 4
ACCECTTCAGTTCCATATICAATCCAAACTTGAAACATTGCAGTTGCAGCTAAAACGTGAGACTTCCCC	480	421 ATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGT	ъ ч
	CCGATTTTGTTGCCCCTTTAGTGCC 420	361 TGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCCGATTTTGTTGCCCCCTTTAGTGCC	ъ к
ATGENERAL GUARDE LA CARGO LA CARGO CONTROL DE LA CARGO CONTROL DE LA CARGO CARGO LA CARGO LA CARGO CARGO LA CARGO CARGO LA CARGO CAR	360	301 GACTGGCGGCATGTTCTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTA	ъ ч
A THE TRANSPORT OF THE PROPERTY OF THE PROPERT	300	241 TGTGATCTTCTACAATTTTGATCTGTTCCTTGCTGACCCCTCTTTATTTA	ъ ч
	TRAGTGATCGGTGGCCGAGTTGGTTA 240	181 AGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGATGATCGGTGGCCGAGTTGGTTA	8 4
	180	121 TGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCCCGGGCAGTGGTTGGACGCGTGAGCA	8 4
	120	61 TICGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTT	Б Қ
	TTCCCAATATTGACCCCGTATTGTT 60	1 GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTTCCCCAATATTGACCCCCGTATTGTT	σ <

	_	JOURNAL Nature 406 (6795), 477-483 (2000)	
/gene="VC0669" complement(29433035)	CDS	TITLE DNA Bequence of both chromosomes of the cholera pathogen Vibrio cholerae	
complement (29433035)	gene	Nierman, W.C. and White, O.	
EQSHYRNKLSKVLMIPVQGEREIPLAERCYGSPLLWSPSPEBEAQLKADWEBLMEWIV LGKVAQITAKHGEVLQLRPKAANGRALTBAYGANGRPIKALPRGFYLRTQFTAQILQR		Gill, S.R., Nelson, K.E., Read, T.D., Tettelin, H., Richardson, D., Ermolaeva, M.D., Vamathevan, J., Bass, S., Qin, H., Dragoi, I., Callers B. McCorlait Titoback B. Bleichers B. Callers B. McCorlait Theorems B. McCorlait Theorems B. Callers B. McCorlait Theorems B. Callers B. McCorlait Theorems B	
<pre>/translation="mkpapttqqelltraqqiaglsfaeladeagmtvppdlrkdkgw VGqllewhlgatagsrpqqdfehlgielksipisytgkplettfvcvapltgvhgltw</pre>		AUTHORS Heidelberg, J.F., Eisen, J.A., Nelson, W.C., Clayton, R.A., Gwinn, M.L., Dodson, R.J., Haft, D.H., Hickey, E.K., Peterson, J.D., Umayam, L.,	
-			RE
<pre>/transT_table=11 /product="DNA mismatch repair protein MutH"</pre>		MSIN	
PID:577425; identified by sequence similarity; putative" /codon start=1		KEYWORDS SOURCE Vibrio cholerae O1 biovar eltor str. N16961	SE
L3 SP:P06722 GB:U16361		ACCESSION AE004153 AE003852 VERSION AE004153.1 GI:9655103	S A
complement (18912556)	CDS	61 of 251 of the complete chromosome.	ţ
complement (18912556)	gene	AE004153 9931 bp DNA linear BCT 10	351
ILATEAYVALAQQFGLDPAQMALAFVNQRPFVASNIIGATTMEQLKSNLDSLDISLNA EIIOFTOFTGTTTVANDCE		RESULT 3	A R
VTLIETLEALNDLVRMGKVRYIGVSNETPWGVMSYLRLAEKHELPRIVSIQNPYNLLN RSFEVGLAEISHLEGVKLLAYSPLAFGALSGKYLNGARPAGARCTLHORFSRYFTEOG			
DYALERGVNFIDTAEMY PVPPTAQTQGKTEEFIGNWLAKSGKREKI VLATKVAGPRNV PYIRDKMALDHRNIHQAVDDSLRRLQTDYIDLYQLHWPQRQTNTFGQLNY PYPDKQEE		Db 2881 TTTCGTCAGCGAAATCGGCGCTGCAG 2909	밁
/translation="WALRQGSAMQYTKLPHSSLEISKICLGTWTFGEQNSQADAFQQL		Qy 2881 TTTCGTGGTCAGCGAAATCGGCGCTGCAG 2909	Ś
	-	Db 2821 CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCAACGTAGGCC 2880	밁
<pre>/transI_table=11 /product."oxidoreductase Tag. aldo/keto reductase family"</pre>		QY 2821 CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCAACGTAGGCC 2880	ð
<pre>PID:2342573; identified by sequence similarity; putative" /codon start=1</pre>		Db 2761 AGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAAACCGCTGCCGAC 2820	밁
/gene="vc000/" /note="similar to PID:882727 GB:U00096 PID:1789199		2.01 VACUMUI TCMMINGMICITI PACTICAL CACTACTACTACTACTACTACTACTACTACTACTACTACT	. 5
complement (6401698)	CDS	יס ביס מסיים ביל ביל ביל מידידי ביס מסיים ידידי ביס מסיים ביל מידידי ביס מידידי ביל ביל ביל ביל ביל ביל ביל ביל ביל בי	?
complement(6401698) /gene="VC0667"	gene	Db 2701 TGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAATCCTGCAATTGGGTGGG	밁
VWKKKVRRSSYHLPWNNEHLLKDIGLETDGREIGLSLPDAVVAERRVKHIRKVLAARI PT"	,	Qy 2701 TGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAATCCTGCAATTGGGTGGG	ð
/ TELEVISION OF THE STATE OF TH		Db 2641 CGCGGTTTCAACCGGTAACCCACCGGCAACGAGACCAATAATAGAAGTCACCGTGCT 2700	밁
/protein_id="AAF93831.1" /protein_id="AAF93831.1" /db_vref_mg1.0655104"		QY 2641 CGCGGTTTCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCT 2700	8
/transī_table=11 /product="hymothetical protein"		Db 2581 AAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAAT 2640	뭐
<pre>/note="identified by Glimmer2; putative" /codon start=1</pre>		Qy 2581 AAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTTGGCACCCATCACCATAGGAAT 2640	ð
288602 /gene="VC0666"	CDS	2521	문
/gene="VC0666"	gene	2521	Ş
/note="biotype: El Tor"		יייי אינעראר אי	,
/bxref="txon:243277"			7 5
/ ""		2461	}
~~.			닭 :
Location/Qualifiers 19931	FEATURES source	Q	δ.
Submitted (14-JUN-2000) The Institute for Genomic Research, 9712 Medical Center Dr, Rockville, MD 20850, USA	JOURNAL	Db 2341 AAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTTGATAAAAATCAAAAACC 2400	문
Mekalanos, J.J., Venter, J.C. and Fraser, C.M. Direct Submission	TITLE	Qy 2341 AAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACC 2400	Ş
Sellers, P., McDonald, L., Utterback, T., Fleishmann, R.D., Nierman, W.C., White, O., Salzberg, S.L., Smith, H.O., Colwell, R.R.,		Db 2281 AATGGTCGCAATACCCAATACGATAAGTGCGACACCGAAAGTATTACCCAATACCGA 2340	밁
<pre>Gill,S.R., Nelson,K.E., Read,T.D., Tettelin,H., Richardson,D., Ermolaeva,M.D., Vamathevan,J., Bass,S., Qin,H., Dragoi,I.,</pre>		Oy 2281 AATGGTCGCAATACCCAATACGATAAGTGCGACACCGAAAGTATTACCCAATACCGA 2340	ð
g, J.F. J., Ha	AUTHORS	2221 ACGTGCGCGACCAACCATCAAACTCTTCATCAGTTTGCCCATCACCGTAATGGCGAACGAA	밁
10952301 2 (bases 1 to 9931)	REFERENCE	QY 2221 ACGTGCGCGGCCAACCATCAAACTCTTCATCAGTTTGCCCCATCACCGTAATGGCGACGAA 2280	ð
20406833	MEDLINE	Db 2161 CACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTC 2220	밁

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MLSQLRDIVEQVSKVEDVYQALDIFVKQTCEAMSTECCTVYLAN
EEMHRIELMATGCIKFKGDKIHLDFDEGIVGLVKASEPINLAAGLALVLAHAGGG
EEVHSETGTFIIRKQUGULKVGKSPLISEMEVSFLVTLAAGLALVLAHAGGG
HWRLSKKQQAITGVAASSGVAIGEFWWDDTQPDLSEVLPASALDPDFEQERIALAVEN
ALADFRAMKKLJGDINKEALAIFDLFTHLLNDFMLRKDLKAGJCKGGDRADWALRQVV
ESYSNRFARMSDVYLERFAQDIREJGGRLFFHLLNDFMLDKDLKQKGIVORBLTBAU
LAALFKDKLLAVVSLEGAANSHAAILSRALGIPAVMGVSINLRDLNGKKGIVDGYSGK
LFISPSKTILNETRALABERELSRMVMEAIREPATTLDGATDFI
VNGGVDGVGLYKTETISFLJQHRFPSEEBGTQOYRHULMYSHORDKIDGLYURGLIGAGUL
PYLPIEEDNPFLGWRGIRFTLDHPDIFIIQLRAMLRASAESGNLSILLPMISGAKELD
PYLPIEEDNPFLGWRGIRFTLDHPDIFIIQLRAMLRASAESGNLSILLPMISGAKELD
/translation="MNIELLAILLLIGAVVGVLAGLIGIGGILLVPAALFLPYAGI
STEIVMQLALATSLATIILTIGGSALKHLKLGMUDVFVVKMLMFGVVVGGFIGSVVA
WIFSQYLFKVFGVIVLCLSVQMYRSIRALQNIEMPSAMITTLCGTGIGVISSLAGIGG
GSLSVPFLNRHGIEMKKAIGSSSVCGFAIAISGMIGFILHGYQVENLPQYSLGYVYLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MLRLGICGKINAIKEFTRGLPVIDGDGYRLNVGIVICNNHGQVF
WAKRYGQHSWQFPQGGIDDGESPEQAMFRELYEEVGLTKKDVKVIATSRHWLRYKLPK
RLVRWDSQPVCIGQKQKWFLLRLECDESKINWQRGSSPEFDGWRWVSYWYPVRQVVSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3124. .3705
/gene="VC0671"
/note="similar to PID:88
PID:1789194; identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="VC0670"
3018. .3164
                                                                   /gene="VC0673"
5964. .6758
                                                                                                                                                                                                                                                                                                                     GFVRAGKK"
                                                                                                                                                                                                                                                                                                                                            DALKFIYQAYQEVSQQDPRVVMPQIGIMLEVPSMLYLLPLIADKIDFVSVGTNDLTQY
LLAVDRNNARVADVYESMHPAVVMALKQIQQTCATHQIPVCVCGELAGDPIGALLLIG
LGYTTLSMNTSNVAKVKYLVRHSELAELTQLAEQALTQPYGREIYNMMLAYIEKHGFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="similar to PID:882722 GB:U00096 PID:1255724
PID:1789193; identified by sequence similarity; pu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="phosphoenolpyruvate-protein
/protein_id="AAF93837.1"
/db_xref="GI:9655110"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KRDVYRRAMKEFASLAMPFKERKVKGKRNTHRG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="AAF93835.1"
/db_xref="GI:9655108"
                                                                                                                                                                                                        /note="identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="VC0672"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="MutT/nudix family protein"
/protein id="AAF93836.1"
/db_xref="GI:9655109"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="VC0670"
/note="identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="hypothetical protein"
/protein_id="AAF93834.1"
/db_xref="GI:9655107"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="identified by Glimmer2; putative"
                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                               'gene="VC0673"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation="MRGMSHKIVDNLELAQNLSFFIPFTNKYRANHNSKFAPLGDMWK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation="MRHTAHLFTFSVNNRVKKLGGCVKKGIYQQ"/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 5954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'C0672"
                                                                                                                                                                                                        γģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:882723 GB:U00096 SP:Q46930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γď
                                                                                                                                                                                                          Glimmer2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glimmer2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         by sequence
                                                                                                                                                                                                     putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  phosphotransferase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    putative"
                                                                 밁
                                                                                                             Ś
                                                                                                                                                           밁
                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                     7194
                                                                                                                                                                                                                                                                                                                                                                                                                                     6954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6834
                                                                                                                                                              7134
                                                                                                                                                                                                                                                      7074
                                                                                                                                                                                                                                                                                                                                               7014
                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                         481
                                                                                                                  421
                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2885;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
AACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCCAATATTGACCCCGTATTGTT
                                                                                               ATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGT
                                                                                                                                                                                       TGCGCGTAAAAACCAACGCACCTTCTTTGGTGGCCGATTTTGTTGCCCCCTTTAGTGCC
                                                                                                                                                                                                                                                      GACTGGCGGTATGTCCTTCCACGGCGCTTATTGGGTGATCACCGCCATGTTCTGGTA
                                                                                                                                                                                                                                                                                GACTGGCGGCATGTTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTA
                                                                                                                                                                                                                                                                                                                                                                      AGTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGATCGGTGGCCGAGTTGGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGCAGTGGTTGGACGCGTGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTTCCCAATATTGACCCCGTATTGTT
                                                                     ATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGGACGAGT
                                                                                                                                                              TGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCCTTGGTGCC
                                                                                                                                                                                                                                                                                                                                               AGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGCAGTGGTTGGACGCGTGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="thymidylate synthase"
/protein_id="AAF93840.1"
/protein_id="AAF93840.1"
/db_xref="Gl:965513"
/translation="MRQYLDLCQRIVDQGVWVENERTGKRCLTVINADLTYDVGNNQF
/translation="MRQYLDLCQRIVDQGVWVENERTGKRCLLTVINADLTYDVGNNQF
PLYTTEKSFWKAAVAELLGYLEGYDNAADFRQLGTKTWDANARLNQAWLNNPYERKGED
DMGRVYGVQGRAWAKPDGGHIDQLKKIVDDLKSRGVDDRGELINFYNPGEFPHGCLRFC
MYSHHFSLLGDTYLYLMSTQRSCDVFLGLNFNWQVYVFLALMAQITGKKFGLAYHKIV
NAHIYDDQLELMRDVQLKREPFPAAPQFHINPKIKTLQDLETWVTLDDFDVTGYQFHDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="mpqgylqppnidpvlfsigplavrwyglmylvgflfamwlanrr
Adragsgwtreqvsdllfagflgvviggrvgtvifynfdlfladblylfkvwtggmsp
Hggllgvitamfwyarknortffgvadfvalpfplevafgrignfmsgeltmyb
Wafvepnggpldrhesqlybefalbgvvlffilmwfigkprplgsvsglflagygtfrf
Lyfyvrepdaqlglffggfismgqilslpmviigilmmvwsykrglyqdrvaak"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="VC0674"
6787. .7602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="VC0675"
7612. .8463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/trans1_table=11
/product="prolipoprotein_diacylglyceryl
/protein_id="AAF93839.1"
/db_xref="GI:9655112"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALLAIATTSMLTTRIGAKLATQMPTARLKRFFAIFLMCVAVTMLFQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="similar to GP:
similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="VC0675"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="VC0674"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98.7%;
99.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 8463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 2870.6;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GP:3114981; identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GP:3201564;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ļ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  by sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          by sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
```

60

0

CDS

Sg

540

7253

480

7193

420

7133

360

7073

300

441 GATGGCACAGATCACAGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATC GTGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATC 214 GATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATC 214 CATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCAT [TTAACTICTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCAT 809 ATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTTC 138	1141 GAATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTGG 1200	021 GCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAAC	901 ACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCAA 960	781 TTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAGGT 840	661 CCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTT 720	7254 AACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTC 7313 541 ACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTTTATTCTTAATTGGTTTAT 600 [
B & B & B &	p Q b Q	מם עס הם עס פרים אינים איני	S	\$ \$ \$ \$ \$) B & B & &	B & B &	S
2521 ATCGTGGATGGTGGCACTGGCGAAAGCACGGGAAACTCTTCTTTACAGCGCATATGGCC 2580	401 TITCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAGCCAGTGTGAGACTTTCTC	8994 ACGTGCACGGCCAACCATCAAACTCTTCATCAGTTTGCCCATCACCGTAATGGCGACGAA 9053 2281 AATGGTCGCAATACCCAATACGATAAGTGCGAAAGTATTACCCAATACCGA 2340	2101 GCCCACGNANGYARCCA IANGGC NG I INCLUDING INCLUDING CARTACTOR AND CACHARACTA INCLUDING CAC	B1 CAGAGCAPACACGGCAPACTCACCAGAGACAGCGGTTGCGGCGAGCAGAGCA	921 AA		

망

음 성

유 성

음 경

8 8 8 8 8

Q	Query Best L Matche	ORIGIN					CDS	gene		FEATURES source	TITLE JOURNAL	REFERENCE AUTHORS	JOURNAL	TITLE	AUTHORS	REFERENCE	VERSION KEYWORDS SOURCE	VCTHYAG LOCUS DEFINITION	Db	; &	שם	γQ	g dy	dg dg	?
551 GAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTATTGGTAAACCT 610	Query Match 47.8%; Score 1390.8; DB 1; Length 1410; Best Local Similarity 99.1%; Pred. No. 0; Matches 1398; Conservative 0; Mismatches 12; Indels 0; Gaps 0;		NYSHHESILGOTIYYINGTOSHINQINKI VUUXKUU UUKKUU ING ING SE MYSHHESILGOTIYYINGTOSHING KUUKKUU UUKKUU UUKKUUUKUU UUKKUUU UUKKUUU UUKKUU UUKKUU UUKKUU UUKKUU UUKKUU UUKKUUU UUKKUU UUKKUU UUKKUU UUKKUU UUKKUUUKUU UUKKUUU UUKKUU UUKUU UUKKUU UUKUULUU UUKKUUUKUUN UUKUUKUU UUKKUU UUKKUU UUKUUUKU	/db_xref="SWISS-PROT:066108" /translation="MRQYLDLCQRIVDQGWWDENERTGKRCLTVINADLTYDVGNNQF /translation="MRQYLDLCQRIVDQGWTXTWDANANLNQAWLNNPYRKGED PLOTTRKSFWKAAVAELLGYIRGYDNAADFRQLGTKTWDANANLNQAWLNNPYRKGED	.1"	/ COUGH STATE == 1 /transI table=11 /product="thymidilate synthase"	~~~		/mo	Location/Qualifiers 11410			Infect. Immun. 68 (11), 6411-6418 (2000) 20490577	rando,k. Construction and characterization of a nonproliferative El Tor Cholera vaccine candidate derived from strain 638		-		VCTHYAG 1410 bp DNA linear BCT 01-NOV-2000 ON Vibrio cholerae thyA gene.	9654 TITCGTGGTCAGCGAAATCGGCGCTGCAG 9682	881 TTTCGTGGTCAGCGAAATCGGCGCTGCAG	9594 CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCAACGTAGGCC 9653	2821 CATCGCGACTGCAAGAAGTAATACAGCATGAAAGCCAAGTTTGCCCCAACGTAGGCC 2880	2761 AGCAAATTCAAATAGAACTTTGGCCTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGAC 2820	2701 TGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCCATC	KONORIO DELLA KONELLA KONELLA KONELLA KONELLA KONORIO DELLA KONELLA KO
D	G B 1	8	Ωy	Db Qy	8 !	Q 5	P &	D 5	рb	S.	Db	Q 8	ş 8	Db	δ	D Qy	Qγ	Ωy	₽ 2	⊋ Db	Qy	ъ.	Qy Oy	Q	_ 구
GATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCCGTTTTCAGTCTAA		1571 TTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGGTCACTTTGGAT 1630	1511 GATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCCCAGCGCCTCAG 1570 	1451 ATCACAGGGAAAAAGCCGGGCTTTGCGTATCACAAGATCGTCAATGCGCACATTTACCAA 1510		CCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGCTGATGGCACAG	1331 CATTITICATIGCIGGGGATACCITGTATCICAACAGTACTCAGCGTTCATGTGATGTG	12/1 AACTICIACAATCCGGGTGAATTICACATGGGGTGTTTGCGCCCTTGCATGTACAGCCAT 780	CAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAGGTGAAATTCTT	CAGTTGAAAAAGATTGTTGATGATTTTGAGCCGTGGCGTTGATGACCGAGGTGAAATTCTT	GACGCGTGTATGGAGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTGGTCATATTGAC		1091 AATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTGAGGATGACATG 1150	481 ATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAACCTGGGATGCT 540		971 CCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAGTTGCTCGGCTAT 1030	911 AAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCAACAATCAGTTT 970 	851 TTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATGAACGAAC	791 AAGGCGGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAGGTGAGACAGTAT 300 241 AAGCGCGGTTTGTATCAAGACCGTGTAGCAGACAAAATAGGGTAGTTAGGTGAGACAGTAT 300	181 GGGCAAAICCTCTCCCTTACCTATGGTGATCATCGGTATTTTTGATGATGGTTTTGGTCTTAC 240	731 GGGCAAATCCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGGTCTTAC 790	121 GTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGGGCTGTTTGGTGGTGTTTCATTTCAATG 180	61 CGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTT 120 671 GTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCAATG 730		1 да аттоссоотта са асеостостта ттотта ттотта аттостта аттостта аттостта стта

Qy 1868 GCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGGCAGTTCGCGTAAGAAAGGAATACCG 1927	Qy 1748 CGGGAGCTTTTTTTTATACAGATGATGATGCTTTAACGCTTAAGGCGATAAGAATGCTG 1807	Query Match 42.0%; Score 1222; DB 6; Length 1222; Best Local Similarity 100.0%; Pred. No. 0; Matches 1222; Conservative 0; Mismatches 0; Indels 0; Gaps 0; Qy 1688 TAATCCCGTATTCAGGCGGTATGGCTTGATGGGTTTTATATATA	source RIGIN	REFERENCE 1 AUTHORS Carlin,N. and Lebens,M.R. TITLE Method of producing thy ac-setrains of vibrio cholerae, such strains and their use JOURNAL PATENT: WO 9961634-A 3 02-DEC-1999; CARLIN NILS (SE); SBL VACCIN AB (SE); LEBENS MICHAEL R (SE) FEATURES Location/Qualifiers	ACCESSION AX009483 VERSION AX009483.1 GI:9996768 KEYWORDS SOURCE Vibrio cholerae ORGANISM Vibrio cholerae Bacteria; Protechacteria; Gammaproteobacteria; Vibrionales;		Qy 1931 ATCAAGACCGTAGCCATCAAGTTAAAGCTT 1960 	Qy 1871 CAAGTTGAGATGAGCTCAGCACCTTTAATAGGCAGTTCGCGTAAGAAAGGAATACCGTAA 1930	Oy 1811 GGGATGACGACAAACACACCCAATAAGTAACTCACCACCACCACTTTTGCTCTTACAAGCC 1870	Qy 1751. GAGCTTTTTTATACAGATGATGCTTTAACGCTTAAGCGGTTAGGGCAAGAATGCTGCCG 1810	Qy 1691 TCCCGTATTCAGGCGGTATGGCTTGATGGGTTTTATATAAAAAAGCTCCCGAAGGTCGG 1750
RESULT 6 AY143429 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM	D 09 D	S B 8 B 8	문 & 1	D Q D Q	אל על לים לים לים לים לים לים לים לים לים לי	& B &	g Qy	Db Qy	Db Qy	Db Qy	φ Q γ
SULT 6 143429 AY143429 AY143429 AY143429 TINITION Vibrio cholerae mutant thymidilate synthetase (thyA) gene, complete cds. CESSION AY143429 AY143429 AY143429 CESSION AY143429 AY143429 TWORDS URCE Vibrio cholerae Vibrio cholerae Vibrio cholerae Vibrio cholerae Vibrio cholerae Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;		2708 TGAATCAGTGCCGTTGCCACTAAACCAATCATCACTCACATTGGGTGGG	TCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGAT 	2528 ATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTG 2587		2348 GTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACCTTTCATG 2407	2288 GCAATACCCAATACGATAAGTGCGACACCCACCGAAAGTATTACCCAATACCGAAAGCTGG 2347	2228 CGGCCAACCATCAAACTCTTCATCAGTTTGCCCATCACCGTAATGGCGACGAAAATGGTC 2287 	2168 CCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTCACGTGCG 2227	2108 AGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGATTGAACTAATACCGTAACCACTGTA 2167 	2048 ATGTTCGCACCTAAGGTAAATGGGTAGATTTCACGCACTTTCAGCACGCCAGAGCCCACG 2107

Q B Q B Q B Q B Q	J. Y	REFERENCE AUTHORS TITLE JOURNAL FEATURES SOURC Gene CDS
772 GATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAAAATAGGG 831 181 GATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGG 240 832 TAGTTAGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGG 240 832 TAGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGATCAAAGTGTGTTTGGGT 891 241 TAGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAAGTGTTTTGACCTACGA 951 301 TGAAAATGAACGAAACGGGCAAGCGTTGTTTGACCTGTGATTAATGCCGATTTGACCTACGA 951 301 TGAAAATGAACGAACGGGCAAGCGTTGTTTGACCTGTGATTAATGCCGATTTGACCTACGA 360 952 TGTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAAGCTGCGGT 1011 1	y Match Local Similarity 99.0%; Pred. No. 0; hes 1224; Conservative 0; Mismatches 12; Indels 0; Gaps 0; 522 TrggTTTATTGGTAAACCTCGTCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATA 651	Vibrionaceae; Vibrio. 2 1 (bases 1 to 1236) 2 Xia;X. Direct Submission Disease Control and Prevention, Chinese Center for Disease Control Disease Control and Prevention, Chinese Center for Disease Control and Prevention, P.O. Box 5, Changping, Beijing 102206, P.R. China Location/Qualifiers 11236 /organism="Vibrio cholerae" //mol type="genomic DNA" /db xref="taxon:666" 2481099 /gene="thyA" /note="MthyA" /note="does not catalyze the conversion of dUTP into dTWP" /codon_start=1 /franel_table=11 /protein_id="AAN16904.1" /db xref="GI:23343946" /franelation="MRGYLDLCQRIVDQGVWVENERTGKRCLTVINADLTYDVGNNQF PLVTTRKSFWKAAVAELLGYIRGYDNAADFRQLGTKTWDANALNQAWLNNPYRKGED DMGRVYGVQGRAMAKEDGGHIDQLKKIVDDLSRGYDDRGSILNFYNPGEFENMGCLAPC MYSHHFELLGGTIXLNETNGCOVPFLALMAQLTGKKEGLAYHKIV NAHIYQDQLELMRDVQLKREPFPAPQFHINPKIKTLQDLETWVTLDDFDVTGYQFHDP IQYPFSV"
RESULT 7 VCAJ10988/c LOCUS LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS TITLE JOURNAL REFERENCS TITLE JOURNAL REFERENCS TOTLE JOURNAL COMMENT FEATURES SOUICE SOUICE	B & B & B & B & & & & & & & & & & & & &	8 8 8 8 8 8 8 8 8 8 8 8
VCAJ10968 Vibrio cholerae nptA gene. AJ010968 AJ010968 AJ010968 AJ010968 AJ010968 AJ010968 AJ010968 Vibrio cholerae Vibrio cholerae Molecrae; phosphate pump. Vibrio cholerae Bacteria; proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae; Vibrio. 1 Lebens,M., Soderlund,L.O., Lundquist,P. and Carlin,N.I.A. A putative sodium dependent phosphate pump in Vibrio cholerae Unpublished 2 (hases 1 to 1591) Carlin,N.I.A. Direct Submitted (17-SEP-1998) Carlin N.I.A., SBL Vaccin AB, Department of Molecular biology, FMB, Jv 30, Stockholm, S-105 21, SWEDEN nptA gene is located inbetween the nhar gene (AJ002395) and the thyA gene (AJ005514) both running in opposite directions. Location/Qualifiers Ce /organism="Vibrio cholerae"	1612 AACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGGTTCCACGATCCTATTCA 1671	1192 TGATGGTGAGGATGACATGGGACGCGTGTATGGATTCAGGGTAGAGCTTTGGGCTTAGCCC 600 1192 TGATGGTGGTCATATTGACCAGTTGAAAAGATTGTTGATGATTTGAGCCGTTGGCCTTGA 1251 601 TGATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTTGGCGTTGA 660 1252 TGACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCG 1311 661 TGACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCG 720 1312 CCCTTGCATGTACAGCCATCATTTTCATTGCTCGGGTGAATTTCACATGGGGTGTTTGCG 720 1312 CCCTTGCATGTACAGCCATCATTTTCATTGCTTGGGGGATACCTTGTATCTCAACAGTAC 1371 1312 CCCTTGCATGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTAC 1371 1312 TCAGCGTTCATGTGATGTGCCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTT 1431 131 TCAGCGTTCATGTGATGTGCCCCTTGGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTT 1431 132 TCAGCGTTCATGTGATGTGCCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTT 1431 133 TCAGCGTTCATGTGATGTGCCCCTTGGGGTTGAAATTTCAACATGGTGCAGGTTTATGTGTT 1431 1432 CCTTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGGTTTGGGTTACACAAGATCGT 1491 1432 CCTTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGGTTTGGCTTACAAAACGTGA 1491 1491 CCTTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGGTTTGGCAGGTATCACAAGATCGT 1491 1492 CAATGCGCACATTTACCAAGATCAACTCGAATTGATGGGGCTTGGCGGTTTCACAAGATCGT 1491 1491 CCAATGCGCACATTTACCAAGATCAACTCGAATTGATTGA

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 1187; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          stem_loop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -35_signal
                                                                                                               2143
 1111
                                   2203
                                                                           1171
                                                                                                                                                         1231
                                                                                                                                                                                                                                                                                                                                                 1963
                                                                                                                                                                                                                                                                                                                                                                                       1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1723
                                                                                                                                                                                           2083
                                                                                                                                                                                                                                   1291
                                                                                                                                                                                                                                                                       2023
                                                                                                                                                                                                                                                                                                             1351
                                                                                                                                                                                                                                                                                                                                                                                                                               1903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1591
CGCATTTTGTAGAATTTCACGTGCGCGGCCAACCATCAAACTCTTCATCAGTTTGCCCAT
                                                                                                                                                                                                                                                       GAGCAGAGCAGTAATACAAGTGCCAATGTTCGCACCTAAGGTAAATGGGTAGATTTCACG
                                                                                                                                                                                                                                                                                                                                 GTGCACCAGCGCAATTTGCAGAGCAAACACGGCAAACTCACCAGAGACAGCGGTTGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACCACCACCATTTTGCTCTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTAAGCGGTTAGGGCAAGAATGCTGCCGGGGATGACGACAAACACACCCAATAAGTAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTATATAAAAAAAGCTCCCGAAGGTCGGGAGCTTTTTTTATACAGATGATGCTTTAACGC
                                                                           TTGAACTAATACCGTAACCACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAAT
                                                                                                                                                     CACTTTCAGCACGCCAGAGCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGA
                                                                                                                                                                             CACTTTCAGCACGCCAGAGCCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGA
                                                                                                                                                                                                                                 GAGCAGAGCAGTAATACAAGTGCCAATGTTCGCACCTAAGGTAAATGGGTAGATTTCACG
                                                                                                                                                                                                                                                                                                           GTGCACCAGCGCAATTTGCAGAGCAAACACGGCAAAACTCACCAGAGACAGCGGTTGCGGC
                                                                                                                                                                                                                                                                                                                                                                                       CAGTTCGCGTAAGAAAGGAATACCGTAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAA
                                                                                                                                                                                                                                                                                                                                                                                                             CAGTTCGCGTAAGAAAGGAATACCGTAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCACCACCATTTTGCTCTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTAAGCGGTTAGGGCAAGAATGCTGCCGGGGATGACGACAAACACACCCAATAAGTAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTATATAAAAAAAGCTCCCGAAGGTCGGGAGCTTTTTTTATACAGATGATGCTTTAACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40.8%; ilarity 100.0%; Conservative C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="nptA"
/codon_start=1
/transI_table=11
/transI_table=11
/transI_table=11
/product="sodium_dependent_phosphate_pump"
/protein_id="CAA09443.1"
/protein_id="CAA09443.1"
/db_xref="GI:3646477"
/db_xref="GI:3646477"
/db_xref="GI:3646477"
/db_xref="GI:3646477"
/db_xref="GI:3646477"
/db_xref="GI:3646477"
/db_xref="GI:367918"
/translation="MIMOATSPAAPISITTKGLRWANIAFMLYLLLLAVANVGSGFRW
/translation="MIMOATSPAAPISITTKGLRWANIAFMLYLLLLAVANVGSGFRW
/translation="MIMOATSPAAPISITTKGLRWANIAFMLYLLIFLEMMFGILEKV
SHUTVNGYLLATGDMSNKGFDFIKPITKPVITGFFNLLAVLIFLELEMMFGILEKV
SHUTVNGYLLATGDMSNKGFDFIKPITKPVITGLETQLSVLGNTFGGVALIVLGIATIF
VAITVNGKLMKSLMVGRAREILQNAIGRGFHAGTAVGAUGATVVUSSSTTTSLMVPLV
GSGULKVREIYPFLGANIGTCTTALLAATAVGGEFAVFALQIALVHLSFNLMATVLI
YGIPFLRELPIKGAELISTWACKSKMVVVSYLLGVFVVIPGSILALTA"
1550..1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="nptA"
/note="shared with thyA gene running
direction"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="nptA"
267. .272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="nptA"
245. .250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /mol_type="genomic DNA"
/strain="JS1569"
/db_xref="taxon:666"
245. .1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              function="transcription termination"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="nptA"
373. .376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="nptA"
}83. .1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1187; |
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1591;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    opposite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1472
 1052
                                                                           1112
                                                                                                               2202
                                                                                                                                                     1172
                                                                                                                                                                                           2142
                                                                                                                                                                                                                                                                     2082
                                                                                                                                                                                                                                                                                                             1292
                                                                                                                                                                                                                                                                                                                                                 2022
                                                                                                                                                                                                                                                                                                                                                                                       1352
                                                                                                                                                                                                                                                                                                                                                                                                                             1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1782
                                     2262
                                                                                                                                                                                                                                 1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
 JOURNAL
distinct from that of V cholerae Lancet 361 (9359), 743-749 (2003)
```

음 성

ঠ 밁 δ

밁

뮻

S 밁 S 밁 δ 밁 Ś 문 δ 밁 S

δ	2263 CACCGTAATGGCGACGAAAATGGTCGCAATACCCAATACGATAAGTGCGACACCACCGAA 2322
Db	1051 CACCGTAATGGCGAAAATGGTCGCAATACCCAATACGATAAGTGCGACACCACCGAA 992
, Q	23 AGTATTACCCAATACCGAAAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTTGGTAATCGG 23
Дb	991 AGTATTACCCAATACCGAAAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGG 932
Ş	2383 TTTGATAAAATCAAAACCTTTCATGCTCATATCGCCCAGTCGCAAGCAGAGGCGGAAACGAG 2442
Db	931 TTTGATAAAATCAAAACCTTTCATGCTCATATCGCCAGTCGCAAGCAGAGGGCGAAACGAG 872
Ş	2443 CCAGTGTGAGACTTTCTCTAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCAC 2502
Db	871 CCAGTGTGAGACTTTCTCTAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCAC 812
Ş	2503 CGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTC 2562
Db	811 CGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTC 752
\$	2563 TTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGC 2622
Db	751 TTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGC 692
δ	2623 ACCCATCACCATAGGAATCGCGGTTTCAACCGGTAACCCACCGGCAACGAGACCAACAAT 2682
Db	691 ACCCATCACCATAGGAATCGCGGTTTCAACCGGGTAACCCACCGGCAACGAGACCAACAAT 632
Ş	2683 AATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAA 2742
Db	631 AATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAA 572 .
VΩ	2743 TCCTGCAATTGGGTGGGAAGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCA 2802
Db	571 TCCTGCAATTGGGAAGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCA 512
ઇ	2803 TTTAAAACCGCTGCCGACCATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAA 2862
Db	511 TITAAAACCGCTGCCGACCATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAA 452
8	2863 GITTGCCCAACGTAGGCCTTTCGTGGTCAGCGAAATCGGCGCTGCAG 2909
Ъ	451 GTTTGCCCAACGTAGGCCTTTCGTGGTCAGCGAAATCGGCCTGCAG 405
RESULT 8 AP005074 LOCUS DEFINITION ACCESSION VERSION VERSION	AP005074 298900 bp DNA linear BCT 05-MAR-2003 N Vibrio parahaemolyticus DNA, chromosome 1, complete sequence, 2/11. AP005074 BA000031 AP005074.1 GI:28805287
	Vibrio parahaemolyticus M Vibrio parahaemolyticus Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales; Vibrionaceae; Vibrio.
AUTHORS	Nasu, H., Iida, T., Sugahara, T., Yamaichi, Y., Makino, K., Shinagawa, H. and Honda, T.
TITLE	A filamentous phage associated with reparahaemolyticus 03:K6 strains
MEDLINE PUBMED	μNC
REFERENCE AUTHORS	2 Makino, K., Oshima, K., Kurokawa, K., Yokoyama, K
	Tagomori, K., Iijima, Y., Najima, M., Nakano, M. Kubota, Y., Kimura, S., Yasunaga, T., Honda, T.,
TITLE	Genome sequence of Vibrio parahaemolyticus: a pathogenic mechanism

```
MEDLINE
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome project This clone was isolated from a patient presenting with acute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Information Research Center; 3-1, Yamadaoka, Suita, Osaka 565-0871, Japan (E-mail:ken@gen-info.osaka-u.ac.jp, URL:http://www.gen-info.osaka-u.ac.jp/, Tel:81-6-6879-8365,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oshima, K., Kurokawa, K., Makino, K., Yokoyama, K., Yasunaga, T., Honda, T., Shinagawa, H., Hattori, M. and Iida, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (09-APR-2002) Ken Kurokawa, Osaka University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fax:81-6-6879-2047)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12620739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 298900)
                       /product="conserved hypothetical protein"
/protein id="BAC58570.1"
/db xref="di-2885290"
/btranslation="MIKKALPIIVGLLVVSQSAYADVSLKLKGIDGALEDNVKAYLSS
/translation="MIKKALPIIVGLLVVSQSAYADVSLKLKGIDGALEDNVKAYLSS
/translation="MIKKALPIIVGLLVVSQSAYADVSLKLKGIRVALKGEPKKIK
/MDVVISGEAKEDERETNLIAKSPLKVCRILAVGGYPKLSGIRKIALQRGYFNGDFK
/MDVVISGEAKEDERETNLIAKSPLKVCRILAVGGYSTINENRVESMRPETIGEPLIVSD
VGEYNQNLSNTDWFSSVFVEPDLSKLEDGRELFIKVSLAPAKNQIETGIGYSTDTGV
RGTLKWKKPWSARGHSFNTALSLSKPEQTITAKYKIPLDDVLAETYQLQFGLKHLDN
RDTSSLESNLAVERHWLTDGGWHKTVVYRHLYENRGGLGDDGVQFVLPGATFSRTRV
RGGSMPWGDKQSVTVEYDDALLSETRVLRLLGRSSWIRGIGERHRGLFRLEGGANI
TEEFFEKLSPSLRFFAGGDNNIRGYGYESISPVDESGALTGAKYILSSTLEYQYRVYGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ILLGMGCFWGAERLFWQLDGVVSTSVGYAGGFTPNPTYEEVCTGKTGHTEVVRVVVPDE
RVISLAQLLAVFWEKHDPTQGMRQGNDLGTQYRSAIYTYSQDQQEIADKSKLQYQQAL
EAELRSTITTEIVPAGPYYFAETYHQQYLAKNPDGYCGIGGTGVCFPPSLQG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (399. .1037)
/gene="VP0306"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MLREFAVYRPLQVARFVKTLFKGQFFIVGVGSFCFDNGKVLLPD
VKDQKRLAVFKEVNQAISSLSA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="VP0307"
1205. .2917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (399. .1037)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Vibrio parahaemolyticus"
/mol_type="genomic DNA"
/strain="03:K6"
  WWAATFYDIGDAFNDTPEWKSGAGVGIRWASPVGPVSFDFAWGLDEKPNNEFRIHFSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /evidence=not_experimental
/trans1_table=11
/product="peptide methionine sulfoxide reductase"
/protein_id="BAC5859.1"
/db_xref="GI:28805289"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _dus/
                                                                                                                                                                                                                                                                                                                                                                        /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="similar to GB:AAF95689.1 (AE004323) percent
dentity 66 in 571 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation="MLNKQTLISIEDALPGREQPMQIEDCHFVNQSSLTAPLAHHQQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dentity 74 in 208 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="VP0306"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
/product="hypothetical protein"
/protein id="BAC58568.1"
/db_xref="GI:28805288"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 evidence=not_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="similar to PIR:S56442 percent identity 49 in 63 aa"
'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="VP0307"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="VP0305"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="VP0305"
                                                                                                                                                                                                                                                                                                                                                                                                                                   codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="similar to GB:AAF95690.1 (AE004324) percent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .298900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _strain="RIMD 2210633"
_xref="taxon:670"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genome
                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VTLSADY PIKAQLDALVKQADAKGQKLSLSASGSVGDLSINATILSELVQABIKGDIQP
LKTQILPEDVSIKNUQAQWELPGQSDYQVSVPSILAAKGSLIGYBVALETKASGKDIPAV
DVALAGKGTLEQIDLESLVVKTLGGELSGKVMANMAAPINWQADLALKNIQPGLQWKE
AEGDISGSIGSTGSGITEQGGRQVSLPELDIDGILRGYPUALGKMGKGEDIQ
LTTQGLALSHGPNQLSAKGKIDKQILMDVEVNPPDFAKSVPDLAGKMQKKVALRGSLK
EPDINLDLALNQINWQQQANVETITLKGDVTPLPAPKANLSLIANNITYDDIKVDSAD
LEVSGDEKLHQLTLDVVSDLVSTSLEIEGTFKQKPEMIWDGALRALTLTSSQGPWSLQ
KSTANWKNIDKQIANVQAHCNLQAKSSVCLTEDISVGKTGQAKLAINDENPDQIKQFL
PPETKLQGSVNAQAFAKMAPEKKPEVTLSVNMPKGQVEQALEQDIKVGNDSFSFKAAL
AKDKLDAEMLFDVKDNGDLSGKVSLLANVSSEKTIDGKVALSTFHLDFLAPLIGESSL
AKOKLDAEMLFDVKDNGDLSGKVSLLANVSSEKTIDGKVALSTFHLDFLAPLIGESGL
AKTURGNINLPWGRIVLEELPPSAVGVSSSTVLINKDLQPVDEVAAMPENVETDINIKI
AKTURGNINLPWGRIVLEELPPSAVGVSSSTVLINKDLQPVDEVAAMPENVETDINIKI
AKTURGNINLPWGRIVLEELPPSAVGVSSSTVLINKDLQPVDEVAAMPENVETDINIKI
                                                                                                                                                                                                                                                           /trānslation="mrvliigammmllsacAqttlpastsvtdwqafgkqsaldglre
lsqeriakldgtnhatpelimayqngyqegkqeyceqsaymlgvvgrpyfgicddvdp
ffqhdydagrmssagapi"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="VP0308"
/gene="VP0308"
/gene="VP0308"
/note="similar to GB:AAF95688.1 (AE004323) percent
                                                                                                                                                                                                                    complement (7607. .8137)
                                                                                                                                                                                                                                                                                                                                          /evidence=not_experimental
/(trans1_table=11
/product="hypothetical protein"
/protein_id="BAC58573.1"
/db_xref="GI:28805293"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           trānslation="MQHLIFVYGTLRKGEYNHHYLSSAQFLGLHETDAQFSLYDVGSY"/trānslation="MQHLIFVYGTLYALDKGEYNHHYLSSAQFLGLHETDAQFSLYDVGSY"/
/evidence=not_experimental
/transl_table=11
                                                                                                                                                                     complement (7607. .8137)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TEEIASGDWCQRV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="similar to GB:AAF95687.1 (AE004323) percent
dentity 64 in 115 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="VP0309"
                                                                                  note="similar to GB:AAF95686.1 (AE004323) percent dentity 90 in 176 aa"
                                                                                                                                                                                                     'gene="VP0311"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene="VP0310"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="VP0310"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein_id="BAC58572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rransl_table=11
product="conserved hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="VP0309"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein_id="BAC58571.
db_xref="GI:28805291"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       product="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    transl_table=1:
                                                           codon_start=1
                                                                                                                                             gene="VP0311"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db_xref="GI:28805292"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LPGLQVKYGVGIFNSLGEFTVRYRLMQDLYLEAVSGVDSAVDLLYQFEFD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               evidence=not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dentity 54 in 1258 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .7532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .6681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein"
```

```
GPADQPYVSIKAIRNPDNTQDDVIAGVRVTGPASDPSVEIFSEPAMPQANALSYLLRG
QDIDGESGGNAMTTTLIGLSLAKSGRVVGEIGEAFGVQDLQLDTAGSGDDSQVTVSGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EKALPQLKVENIQGSLFPRFALQNVSFVDBSLHIDAKVERIALAINFRCFFDFKVCVD
ELALGGVNFQMPELFPASEEBEETFPLRSISTPPTAFAURIKVSFNDINVAVLGNQID
QTESTALSNQGDRLVIAFTALKDINVALAPSABAFBAAAEBKETDATPQDIVLPEVM
IPLTVEARRLDIHNFKLAGETPVIVNHLGLVARAGGERVDVKTLELDMPEVEGKLSTQ
                                                                                                                 GDDFQLAAFGLKGGLKGSLNVTQKDKGPFIVGEVNIVDGSYRSFGQDLVIEEGKILMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        translation="MIKKMFKWTKWLSLSLIGLLLLITIFVATVLFTHPGLKLAIWGA
```

```
ঠ
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                        S
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
밁
                                                                       밁
                                                                                                     S
                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Sin
Matches 1303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
 240545
                                                                                                                                                                                                                       240365
                                                                                                                                                                                                                                                                                                240305
                                                                                                                                                                                                                                                                                                                                                                                                                                                240185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240005
                                    542
                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
 CAACTGTATGAAATGCTGTTAGAAGGCGTAGTGCTGTTTTTCATCTTGAACTGGTTCATC
                                                                                                                                                                     TTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGACGAGTA
                                                                                                                                                                                                                                          GCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTTGTTGCCCCCTTTAGTGCCCA
                                                                                                                                                                                                                                                                                                                   ACTGGCGGCATGTCCTTCCACGGCGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTAT
                                                                                                                                                                                                                                                                                                                                                                                            GTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTATGTGGTTGGCCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTATTGGTCCTGTTTCAATTCGTTGGTACGGTTTGATGTACCTCGTCGGTTTCATGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGAGAATGATTTATGTCTCAGGGATACCTTCAATTTCCCCAATATTGATCCGGTTTTAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAAGGITTGITATGCCTCAGGGITTATCTGCAGTTTTCCCAATATTGACCCCCGTATTGTTT
                                  CAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATT
                                                                                                                                                                                                                       GCACACAGAACGGTCGAACTTTCTTTGGTGTAGCGGACTTTGTCGCGCCGTTAGTGCCA
                                                                                                                                                                                                                                                                                              ACTGGCGGTATGTCGTTCCACGGTGGTTATTGGGTGTGATTACGGCAATGTTCTGGTAT
                                                                                                                                                                                                                                                                                                                                                                         GTTATCTTCTATAACTTTGAACTGTTTTTAGATGATCCTTTGTATCTCTTCAAAGTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCTCTGATCTACTTTTCGCGGGCTTCTTAGGGGTCGTCATCGGTGGTCGCGTCGGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCATTGTGGTTGGCGAACCGTCGTGCTGACAAACCTGGCAGCGGCTGGACTCGAGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTTT
                                                                                                             ACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36.2%;
nilarity 76.6%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RDEE"
9265. .9360
/gene="VP0312"
9265. .9360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tablation="MSGMRTLGEFIVEKQADFPHASGDLSSLLASIRLAAKIVREIN
AGLGGITGAVGTENVQGEAQOKLDVXANDKFKALEARDQVCGVASEEEDEAVAFNK
ELNQNAKYVULMDFLDGSSNIDVNVSVGTIFSIYRRVSFIGTFATEEDFLQGHKQVA
AGYVIVGSSTMLVYTTGNGVNGFTYDFSIGSFCLSHENMMIPEDGKIYSINEGNYIRF
PQGVKKYIKCQENVPEDGRFYTSRYIGSLVADFHRNLLKGGIYLYBSTQSHPQGKLR
PQGVKKYIKCQENVPEDGRFYTSRYIGSLVADFHRNLLKGGIYLYBSTQSHPQGKLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="inorganic pyrophosphatase"
/protein_id="BAC58574.1"
/protein_id="BAC58574.1"
/db_xref=="01:28805294"
/translation="MSLNHVPAGKSLPEDIYVVIEIPANADPIKYEVDKDSGAVFVDR
/translation="MSLNHVPAGKSLPEDIYVVIEIPANADPIKYEVDKDSGAVFVDR
FMSAPMFYPCNYGYVNNTLSLOGDPUDYLVPTPYPLMFGSVIRCRPVGYLKMTDESGE
DAKVUAVPHSKISKEYEHIQDVGDIPELLKAQITHFFERYKELESGKWVKVDGWADVE
AAKAEILQSYERAQNK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /evidence=not_experimental
/transl_table=11
/product="fructose-1,6-bisphosphatase"
/protein_id="BAC58575.1"
/db_xref="G1:28805295"
/db_xref="G1:28805295"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (8265. .9281)
/gene="VP0313"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (8265. .9281)
/gene="VP0313"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLYECNPMAFLI EQAGGIASDGVNR IMDI KPTELHQRVPFFVGSKNMVRKVEEFLELH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="similar to GB:AAF95685.1
dentity 88 in 336 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1052.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (AE004323)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     298900;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           percent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6;
                                                                                                                                                                                  481
                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                            301
 240604
                                    601
                                                                         240544
                                                                                                                                                240484
                                                                                                                                                                                                                       240424
                                                                                                                                                                                                                                                                                              240364
                                                                                                                                                                                                                                                                                                                                                                       240304
                                                                                                                                                                                                                                                                                                                                                                                                                                                240244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240064
                                                 Ś
                                                                                                                     5
                                                                                                                                                             밁
                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                   밁
                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240605 AAAAAGCCTCGCCCATTGGGTTCGGTATCAGGGCTATTTTTAGCTGGATATGGTACATTC
                                                                                                                                                                                                                                                                                                                 241385
                                                                                                                                                                                                                                                                                                                                                                                          241325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240845
                                                                                                                                                                                                                                                                           1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGTGAAACAGTATTTAGATTTGTGTCAACGCATCGTTGATCAAGGTGTTTGGGTTGAA
                     TGGGTGACACTGGATGACTTTTGGGTAGAAGGGTACGAACACCACGATCCAATTCGTTAT
                                                     TGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATAC 1675
                                                                                                                 TTCCCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACT
                                                                                                                                                                 GCGCACATTTATGAAGATCAGCTTGAGTTGATGCGTGATGTTCAGTTGAAGCGTGAACCG
                                                                                                                                                                                                      GCGCACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCA
                                                                                                                                                                                                                                        GCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAAT 1495
                                                                                                                                                                                                                                                                                                                 CGTTCGTGCGATGTGCCGCTTGGATTGAACTTCAACATGGTTCAAGTTTATGTGTTCTTA
                                                                                                                                                                                                                                                                                                                                      CGTTCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                          TGTATGTACAGTCATCTCTCACTACTGGATGACACTTTGTATCTCAACAGTACACAG
                                                                                                                                                                                                                                                                                                                                                                                                                   TGCATGTACAGCCATCATTTTTCATTGCTGGGGGGATACCTTTGTATCTCAACAGTACTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTGGTGAAATCTTGAACTTCTACAACCCTGGTGAGTTCCATATGGGGTGCTTGCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGGTCATATCGACCAGCTACGCAAGATTGTGGATGATTTGACTCGCGGTGTTGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTGAGGATGACATGGGACGCGTGTATGGTGTTCAGGGGTAGAGCTTGGGCTAAGCCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTTCGCCAATTAGGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGAACAATCAATTCCCATTGGTAACGACGCGTAAAAGTTTTTTGGAAAGCAGCAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCAACAATCAGTTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATGAACGAACGGGCAAGCGTTGTTTTGACTGTGATTAATGCCCGATTTTGACCTACGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGGCTTACAAACGTGGTCTTTACCAAGACAAAGCTCAAGTTAAAAACGAAGTAAGGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGTCTTACAAGCGCGGTTTGTATCAAGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTTCAATGGGGCAAATCCTCTCTTACCTATGGTGATCATCGGTATTTTGATGATGATGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTTAGCTGGATACGGTACATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAACGTGGGATGCGAACGCAACCTAAACGACGCTTGGTTGAATAACCCATACCGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCTTCTTAGTCGAGTTCGTTCGCGAACCGGATGCTCAGCTTGGTCTATTTGGTGGTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTGTAGCAGCAAAATAGGGTAGT
                                                                                                                                                                                                                                                                                                                   241444
                                                                                                                              1615
                                                                                                                                                                                                                                                                                                                                                      1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1015
                     241684
                                                                                                                                                                                                                                          241504
                                                                                                                                                                                                                                                                                                                                                                                                                               1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                            241624
                                                                                                                                                                   241564
                                                                                                                                                                                                                                                                                                                                                                                          241384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24102
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 9
AE016798/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                              SdC
                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (13-DEC-2002) Genotech Corp., 461-6, Jeonmin-dong, Yuseong-gu, Daejeon 305-811, South Korea (bases 1 to 301442)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vibrio vulnificus CMCP6
Vibrio vulnificus CMCP6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AE016798 301442 bp DNA linear BCT 29-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Center for Enteropathogenic Bacteria, Chonnam National Medical School, Hak-1-Dong, Dong-Gu, Kwang-Ju 501-746,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (13-DEC-2002) Department of Microbiology, Genome Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rhee,J.H., Kim,S.Y., Chung,S.S., Lee,S.E. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jeong, H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Antigens Preferentially Expressed in Septicemic Patients Infect. Immun. 71 (10), 5461-5471 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and Rhee, J.H. Characterization and Pathogenic Significance of Vibrio vulnificus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 301442)
Kim, Y.R., Lee, S.E., Kim, C.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Proteobacteria; Gammaproteobacteria; Vibrionales;
Vibrionaceae; Vibrio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AE016798.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complete sequence. AE016798 AE016798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chung, S.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4500463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATTCTCAGTGTAATCACG 241704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGTTTTCAGTCTAATCCCG 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 301442)
/transT_table=11
/product="Flagellar motor component MotA"
/product="Flagellar motor component MotA"
/protein_id="AA008842.1"
/db_xref="G1:27359904"
/translation="MDLATLIGLIGGLAFVUMANILGGSIMMFVDVTSILIVVGGSIF
/VUMKFTMGQFFGAAKIAGKAFMFKADEPEDLIAKIVEMADAARKGGFLALEEMEISN
SFMQKGIDLIVDGHDADVVRAALQKDIALTDERHTQGTGVFRAFGDVAPAMGMIGTLV
GLVAMLSNMDDPKSIGPAMAVALLTTLYGAILSNMVFFFIADKLALRRDQETLNRRLI
                                                                                                                                                                                                                                                                                                                                                                            /translation="MGTFADLMSLLMCFFVLLLSFSEMDVLKFKQIAGSMKFAFGVQN RLEVKDIFKGTSIIAQBEREGREDFFLDVIMQQTIDITQQTLEFHEGESDRAGGTQR DQKMTGGQSPETSTQTNQNTEQQQQQQSGAKKEMETLMSIKKALEREIEQGAIE VENLGQQIVIRNEKGAFPEGSAFLQPKFRPLVRQIAELVKDVFGIVRISGHTDNQRL DSELYRSNWDLSAQRAVSVAQEMEKVRGFSHQRLRVRGMADTDPLVDNDTEENRARNR
                                                                                                                                                                                                                                                                                                complement (1072. .1833)
/locus_tag="VV10312"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (103. .1005) /locus_tag="VV10311"
                                                                                                                                                                                                                                                                                                                                                       RVEISIMOGEPLYSDEIPAIPODO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="Flagellar motor protein MotB"
/protein_id="AAO08841.1"
/db xref="GI:27359903"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Moon, Y.H. and Kim, J.J.
                                                                                                                                                                                                                             /locus_tag="VV10312"
/note="COG1291"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="COG1360"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus_tag="VV10311"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Vibrio vulnificus CMCP6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                chromosome="]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 strain="CMCP6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Choy, H.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:27359902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .301442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _xref="taxon:216895"
                                                                                                                                                                                                                                                                              ement (1072.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lement(103. .1005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Progulske-Fox, A.,
                                                                                                                                                                                                                                                                              .1833)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kim,S.Y., Shin,E.K., Shin,D.H.,
ske-Fox,A., Hillman,J.D., Handfield,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Choy, H.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            South
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         University
South Korea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SdD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="Deoxyxylulose-5-phosphate synthase"
/protein id="AAO08845.1"
/db.xref="GI:2735907"
/translation="MTLDISKYPTLALAETPDELRLLPKETLPTLCDELRTYLLNSVS
/translation="MTLDISKYPTLALAETPDELRLLPKETLPTLCDELRTYLLNSVS
/CSCHLASGLGTVELTVALHYVYNTPPDQLLWDVGHQAYPHKILTGRREQMPTIRQKG
GLHPPPWREESEYDTLSVGHSSTSISAALGMAICAEKEGQNRKVVSVIDGAITAGMA
FEAMNHAGDVHSDMLVILNNNEMSISENVGALNNHLARVLSGNLYTSIREGGKKVLSG
VPPIKELVRRTEEHLKGMVVPGTLFBEIGFBVIGPIDGHDVVELVKTLKNMRELKGBV
VPPIKELVRRTEEHLKGMVVPGTLFBEIGFBVIGPIDGHDVVELVKTLKNMRELKGBV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="mdnsmidyLasfqQrnnqQLnLwLdKLpHQnQALIQamayGLVLgGKRARPTLVYATGBMLGCSQBQLDTPASAIECTHASGLIGLDAMDDDELRAGDGCGQCGCCHVKFDEATAILTGDALQTLAFTILAGGTLASDGETQRVAMIQALAQASGAQGMCIQQALDLAABNRAVTLEBLBEIHRNKTGALIRCAVRLGALAGEKGLAILPQLEKYSTAIGLAFQVQDDILDIISDTETLGKPQGSDQELNKSTYPSLLGLEGAMEKAHTLLHBALQAL
                                                                                                     /locus_tag="VV10317"
complement(5812. .6780)
/locus_tag="VV10317"
/note="COG0611"
                                                                                                                                                                                                                                                    /product="Phosphatidylglycerophosphatase A"
/protein_id="AA008846.1"
/protein_id="AA008846.1"
/db_xref="GI:27359908"
/tamslation="MNNPLDKISLNNPWHLLATGFGSGLSPIIPGTMGTLASIPLFLV
/translation="MNNPLDKISLNNPWHLLATGFGSGLSPIIPGTMGTLASIPLFLV
FAPILPLPVYLVIVLAACLVGIKICQVTSDDMGVHDHGSIVMDEFAGFWITMTIMPALQ
IPISELKWVGAGFVLFRFFDMVKFWPIGWLDKRVHGGLGIMLDDIVAGVMSAISLYVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (5303. .58 /locus tag="VV10316" /note="COG1267"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILHIMTKKGKGYEPAEKDPIGYHGYPKFDPAHNSLPKGSGGKESFSNIFGDFLCOMAA
QDPKLMAITPAMTEGGMVRFSKEYPEQYFDVAIAEQHATUATGMAIGGYNPIVAIY
STFICAGYDOLIHDVAIMULPWAFAIDRAGLVGADGCTHQGAFDLSYMRCIPNNVVAIY
PSDENECRQMLYTGHKHQGPSAVRYPRGNGMGTPIESEFTALEIGKGRLVRQGEKVAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MDGVLAIQDGQNPRVIDSYLKNYLNESKRALDIND"
  /transl_table=11
/product="Thiamine
/protein_id="AA0088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (5303. .5806)
/locus_tag="VV10316"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGVIEFMMQEKIMKPVLNLGLPDKFIHQGTQEELHEELGLDAKGIEQAIRHYLAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EAIPYNTOHLEEFARYVVERKN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag=
2452. .3348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MATKKEENMSFEATIEELDNLVDQLENGDLALDDALKKFERGIA
LARASQAKLTBAEQRVSILLSDSDDAPLSDFSTLAB"
                                                    /codon_start=1
/transl_table=
                                                                                                                                                                                                     complement (5812.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3369.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="Geranylgeranyl pyrophosphate
/protein_id="AAO08844.1"
/db_xref="GI:27359906"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_tag="VV10314"
/note="COG0142"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2452. .3348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product="Exonuclease VII small subunit"
protein_id="AAO08843.1"
db_xref="GI:27359905"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="VV10313"
/note="COG1722"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /locus_tag="VV10313"
2201. .2443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SFGTFLANALEAAEALNATVADMRFVKPLDEALLRQLANEHDVLITIEENAIAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          locus_tag="VV10315"
note="COG1154"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'locus_tag="VV10315"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
|transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
transI_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tag="VV10314"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              table=11
  :="Tniamine monophosphate kinase"
|_id="AA008847.1"
                                                                                                                                                                                                        .6780)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .5806)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          synthase"
```

Query Match 35.6%; Score 1035; DB 1; Length 301442; Best Local Similarity 75.9%; Pred. No. 3e-309; Matches 1278; Conservative 0; Mismatches 405; Indels 0; Gaps 0; Qy 8 TITGITATGCCTCAGGGTTATCTGCAGTTTCCTAATATTGACCCCGTATTGTTTTCGATC 67	CDS /locus_tag="VV10322" /locus_tag="VV10322" /note="C00107" /codon_start=1 /trans1_table=11 /product="Riboflavin synthase alpha chain" /protein_id="AA008851.1" /db_xref="GI:27359913"	INFMAKYGRGLICLTMYKERCQELGLEPPMVQDNNAQYTINFTYSIEAAEGVTTGISAA DRARTVQAAVAKEAKAADLVQPGHIFPLAAQDGGVLTRAGHTEAGCDLARLAGFEPAS VIVELIANDGTMARR POLEVFAEQHGLKLGTLADLIEXRNNYETTIERVAECKLPTEF GBFDLVTYRDTIDNQIHFALRKGTMGDQTPLVRVHLQDTFTDLLRSDRNAERSWTLDK AMKRIGQEGGVLVILGNBESPELLIHRVKMFEAQDKEEAPKLAKKQGTSRRVGVGSQI LADLGVHDMRLLSSSNKKYHALGGFGLNVVEYVCE" complement (9168 9824) /locus tag="VV10322"	/nocus_cay="v10341" /notes="3,4-Dihydroxy-2-butanone 4-phosphate synthase; /coG0108; CoG0807" /codon start=1 /transl_table=11 /product="GTP cyclohydrolase II" /protein_id="AAO08850.1" /db_xref="G1:27359912" /db_xref="G1:27359912" /translation="MPISTPQBIIEDIRLGKMVILMDDEDRENEGDLIMAAEHITPEA	/db xref="G1:27359911" /db xref="G1:27359911" /db xref="G1:27359911" /translation="MKVIEGGFPAPNAKIAIVISRFNSFINESLLSGAIDTLKRHGQV /translation="MKVIEGGFPAPNAKIAIVISRFNSFINESLLSGAIDTLKRHGQV /SEDNITVVRCPGAVELPLVAQRYKAKTGKEDAIVSLGSVIRGGTPHPDYVCSEMNKGLA QVSLEFSIPVAFGVLTVDTIDQAIERAGTKAGNKGAEAALSALEMINVLSEIDS" gene		/cogon start=1 /trans1_table=11 /producT="Transcription termination factor" /producT="Transcription termination factor" /protein_id="AAOO8848.1" /db_xref="G1:27359910" /translation="MGASYKPAJARRNARQFALQAIYSWQITKENVATIEAQFLAGEKY /translation="MGASYKPAJARRNARQFALQAIYSWQITKENVATIEAQFLAGEKY /translation="MGASYKPAJARRNARQFALQAIYSWQITKENVATIEAQFLAGEKY /translation="MGASYKPAJARRNARQFALGAIYSWQITKAAPHVRKK" Gene Gene Gene Genelong Gene Genelong Gen	=
OY 1028 INTATTY Db 214597 TACATTY OY 1088 GCTAATY OY 1088 GCTAATY Db 214537 GCGAACY OY 1148 ATGGGAA Db 214477 ATGGGC	908 214717 968 214657	Qy 788 TACAAG Db 214837 TATAAA Qy 848 TATTTA Db 214777 TATTTA		Qy 548 TATGAA Db 215077 TATGAG Qy 608 CCTCGT Db 215017 CCAAGAA	Qy 428 TIGGGG	Qy 308 GGCATG Db 215317 GGCATG Qy 368 AAAAAAC Db 215257 AAAAAAT	Qy 128 TGGTTG Db 215497 TGGCTC Qy 188 GACTTG Db 215437 GACTTG Qy 248 TTCTAC Db 215377 TTCTAT
1028 TATATTCGTGGTTACGATTATGGCGATTTTTCGCCAATTAGGTACAAAACCTGGGAT 1087 4597 TACATTCGAGGTTATGACAATGCGGAGATTTTCGCAAGTTAGGTACGAAAACCTGGGAT 2145 4597 TACATTCGAGGTTATGACAATGCGGAAGATTTTCGCAAGTTAGGTACGAAAACCTGGGAT 2145 1088 GCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTGAGGATGAC 1147	GCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGCCAACAATCAG	TACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAATAGGGTAGGTTAGGTTAGAACAG 847	CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCA 727	TATGAATICGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTATAAAAAAAA	TIGGGGATGGGACGTATCGGTAACTITATGAATAGTGAACTITIGGGGACGAGTAACGGAT	GGATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGGCGGT	TGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCT 187

JOURNAL Submitted (29-MAY-2002) Shin Feng Tsai, National Health Research Institutes, Division of Molecular and Genomic Medicine; 128, Yen-Chiu-Yuan Road, Sec 2, Taipei, Taiwan 115, Republic of China (E-mail:petsai@nhri.org.tw, Tel:886-2-8146-1041, Fax:886-2-2789-0484) COMMENT This sequence was determined by the Sequencing Core of the National Yang-Ming University Genome Research Center (YMGC; http://genome.ym.edu.tw). FEATURES	Chen, C.Y., Wu, K.M., Chang, Y.C., Chang, C.H., Tsai, H.C., I Liu, Y.M., Chen, H.J., Shen, A.B., Li, J.C., Su, T.L., Shao, C Lee, C.T., Hor, L.I. and Tsai, S.F. Comparative Genome Analysis of Vibrio vulnificus, a Mari Genome Res. 13, 2577-2587 (2003) 2 (bases I to 249150) Chen, C.Y., Wu, K.M. and Tsai, S.F. Direct Submission		RESULT 10 AP005332 LOCUS AP005332 249150 bp DNA linear BCT 04-DEC-2003 DEFINITION Vibrio vulnificus YJ016 DNA, chromosome I, complete genome, section	OY 1628 GATGATTTGACGTCACCGATATCAGTTCCACGATCTAATACCCGTTTTCAGTC 1687 Db 213997 GATGATTTCTGGGTAGAAGGGTATGAACATCATGACCCATTCTCGGTA 213938 QY 1688 TAA 1690 Db 213937 TAA 213935		1388 GTGCCCTTGGGGTTGAACTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGCTGATGGCA	Qy 1208 GACCAGTTGAAAAGATTGTTGATGATTTTGAGCCGTTGATGACCGAGGTGAAATT 1267
gene CDS	gene CDS		gene CDS		gene CDS	gene repeat_region	gene CDS
/db_xrel="G!:3/19/439" /translation="MPMSFTHKALLMANRTYLPSITLDRTFEDYPLYYSDKGLYESA LTSMVDVFEQALSQFDIALATRLDLFLFEDHQDTDLSILNDYFNLLKEKLDTDSLFYV WRKREDKVPSHNYRVMLFSDYSQHFGPA1CWDKRNELVCHLKTAWQEAIEKHYSGEAR SLVFLNDRGNYGVGTRCRSKDVNIKNTVFHRMSSLAEAWEEKRYCFGSSLE" 24362642 /gene="VV0515" /note="identified by GeneMark and Glimmer2" /codon_start=1 /transl_table=11 /transl_table=11 /product="predicted transcriptional regulator" /protein_id="BAC33279.1" /db_xref="GI:37197440"	17332368 /gene="VV0514" 17332368 /gene="VV0514" /note="identified by GeneMark and Glimmer2" /codon start=1 /transT_table=11 /product="conserved hypothetical protein" /protein_id="BAC93278.1"	/coden start=1 /coden start=1 /coden start=1 /transl_table=11 /product="hypothetical protein" /protein id="BAG93277.1" /protein id="BAG93277.1" /protein id="BAG93277.1" /translation="MKEIPIKEQDKWMVIAGGLTRLRPDIANNRLLVSISSIGVFVLT RITERPRES	complement (12861441) /gene="VV0513" complement (12861441) /gene="VV0513" /gene="VV0513"	/trans1_table=11 /product="conserved hypothetical protein" /product="conserved hypothetical protein" /protein_id="BAC93276.1" /protein_id="BAC93276.1" /protein_id="MTHQ107437" /db_xref="c1:37197437" /translation="MTHQLNVAHQRAHTITHDRTFNGKPLYYFEDGLVLEYLEEIDRV /translation="MTHQLNVAHQRAHTITHDRTFNGKPLYYFEDGLVLEYLEEIDRV LTEALNKYPRIYAVHININLPSDFGGDYLTVFAHFFRILESETNBLCKDKYTDRTTRY QQTVIRYIWTKASESTSDHHHLILLFDRDLFQNLGTGREGWGRRLYKKVRKAWDSVVE AYYRQPCSGLGYSPTNEGFFELLSDAEVFPLQLNEFFYRISRLAKPITNLNDHRNKSFG CSHD"	/rpt_type=tandem /rpt_unit="TGATGCGTTTGA" 10401708 /gene="VV0512" 10401708 /gene="VV0512" /note="identified by GeneMark and Glimmer2" /codon_start=1	IALDEYPRIMAIRVDLRPPKLRKNEMSGNVMTDFLRSLQSQIDHSGKRKKREGSVRVH PCKVRLAMVRERSSSINDHYHLVLMFNKDRFNWIGKTQTQQENIGSFIVEAWARVAGV DYEEANGLVHFSKRKNSDSVVIHRLNCNSDAFDDAFDEFFKHISYLAKENTKHFGSGR RNFGHSHK" 865888 /gene="rpt1T12" 865888 /gene="rpt1T12" note="2 units of 12 bp in-tandem repeat"	299979 /gene="VV0511" 299979 /gene="VV0511" /note="identified by Glimmer2" /codon_start=1 /transI_table=11 /product="conserved hypothetical protein" /protein_id="BAC93275.1" /translation="MAVPSRKNKNLRLTTKKTFLGRPIQTEHGPLYLDYLEKMINTID /translation="MAVPSRKNKNLRLTTKKTFLGRPIQTEHGPLYLDYLEKMINTID

```
gene
                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                        Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                          SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="r
4310. .4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MGCTPQAVILIYHYYCWLREFLLTFQYCPRNELSLMLNEKFRMP
VIKLGNPFLBSPDEVSAFLGLPVSPREXIKWLNASVVKSKLPTDRTLNNISKEGIRWL
SIRQPAWQLARVFVRKGWSLNVSLPDGGIHKSDLSFWRSHTLKGVQQGLSSTSGELNL
GLLVSYIDKRCVAYQRQLAFIQDAPDINENNQHELISGYYLPVLDFTLLSEQEKALVK
NWLKSSELASKETEQANLCFCYDFWLSLMSVIDVMFLEDWDKHYAEYTTSVHAQQYG
LFGQVFNREERTFLGKFFGLIKEQTNQTYAQLSEYVVLPVSEYERNGLLKRDVQQARF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MKMKFLRLKDVMSLTGLGRSTIYKFMADETDFPKSVPLGGRAVAWVESELEEWMEQRLALKDNPESFQ"
2725. .3162
/codon_start=1
/transl_table=11
/product="conserved hypothetical protein"
/protein_id="BAC93284.1"
                                                                                                                                      complement (5532. .5861)
                                                                                                                                                        VKEIEVTSSVGTFVYTF"
                                                                                                                                                                    /translation="MNTLIRTIMMALLLESITACSEQDAAQTVTADVEVSISTNPHWG
TLVFDIQAITDSTVITGVVINRGNCRLPAGTTSELSRNVQLKFGETYTGYSNNCTVDS
                                                                                                                                                                                                                                                                                                                                                     complement (5149. .5508)
                                                                                                                                                                                                                                                                                                                                                                      /translation="MNKSTLLIATALVFSTSSAFAGGTLGGNPSADSGAVNVSVGKCT
QYKMDVKAAQDAGKEASTITVPKGCEAIKEK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (4874. .5101)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_unit="AAGGTGGGTAGTCGCTCTACCTGATATCTACACG"
complement (4874...5101)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RSLPDIYTTSRYQRYFQHYAP"
4310. .4381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transT_table=11
/producT="hypothetical protein"
/protein_id="BAC93281.1"
/db_xref="GI:37197442"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="VV0517"
3182. .4423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="msysiyydgaapnnqhgctrggiglvymdedneivheesftinr
KTDNAELELLALIEALEYAEDGDVIYSDSDYCYKGFNIMMDDWKDRCWRRADKKPVKN
RHLWQQVDELSSRKYVEVEKVKAHSGVEGNERADLLAVEAAAL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="V
                                                                                                     complement (5532. .5861)
                                                                                                                                                                                                                                                                                                                      complement (5149. .5508)
                                                                                                                                                                                                                                                                                                                                                                                                      /product="conserved hypothetical
/protein_id="BAC93282.1"
/db_xref="GI:37197443"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEWRSGKSLPSVEALSTFFANMDAGRQGADLLIYALFMRALDKVGSRSLPDIYTKVGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transT table=11
/product="ribonuclease HI"
/protein_id="BAC93280.1"
                                                                                                                                                                                                                                                       /codon_start=1
/transi_table=11
                                                                                                                                                                                                                                                                                                       /gene="W0519"
                                                                                                                                                                                                                                                                                                                                       /gene="VV0519"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="rpt1T13"
/note="2 units of 36 bp in-tandem repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="VV0516"
                                                                                        gene="W0520"
                                                                                                                                                                                                                                      product="conserved hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="VV0518"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="VV0518"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="identified by GeneMark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="VV0517"
                                                                     note="identified by Glimmer2"
                                                                                                                                                                                                      db_xref="GI:37197444"
                                                                                                                                                                                                                                                                                      note="identified by GeneMark and Glimmer2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                      transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="identified by GeneMark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="GI:37197441"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .4423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt1T13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W0516"
                                                                                                                                                                                                                         id="BAC93283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                      protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                     protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glimmer2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glimmer2"
                                                    5
                         밁
                                                                                        밁
                                                                                                                   Ś
                                                                                                                                                     밁
                                                                                                                                                                                   á
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 1274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SG
                                                                                                                                                                                                                                                                                                                                                                                                                     175447
                                                                                                                                                       175687
                                                                                                                                                                                                                                                                                                                                                        175507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      175327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      175147
                                                                                                                                                                                                                                                      488
                                                                                                                                                                                                                                                                                                                                                                                       368
                                                                                                                                                                                                                                                                                                                                                                                                                                                       308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
```

```
68 GGCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTTCCTTTTTTGCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                               CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCA 727
                                                                                                                                      CCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTC
                                                                                                       CCAAGACCTTTAGGATCCGTATCTGGTTATTCCTTGCTGGTTATGGTACATTCCGTTTC
                                                                                                                                                                                                                    TATGAGATGGCATTAGAAGGGGTGTTGCTGTTCTTTATCCTCAACTGGTTTATTCGCAAA 175746
                                                                                                                                                                                                                                                TATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAA
                                                                                                                                                                                                                                                                                                                                 GTGCCTTGGGCGATGGTGTTCCCAACCGGCGGACCACTACCACGCCACCCTTCGCAATTG 175686
                                                                                                                                                                                                                                                                                                                                                                GTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCCGCCATCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                        TTAGGGGTAGGCGCTTAGGCAACTTTATGAACGGCGAACTTTGGGGCAGAGTGACCGAT 175626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAAATGGCCGAACCTTTTTTGGCGTGGCGGACTTCGTTGCTCCGTTAGTGCCATTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGT 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCATGTCTTTCCATGGCGGCTTGCTGGGTGTCATTACGGCTATGCTCTGGTACGCGAAG 175506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGT 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCTATAACTTCGATCTCTCCTCGCCGATCCGATTTACCTCTTTAAAGTCTGGACAGGT 175446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACTTGTTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATC 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCTCGCCAATCGCCGAGCAGACAAACCGGGCAGTGGCTGGACGCGAGAGCAAGTTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGTTGGCCAATCGCCGAGCGGATCGCGCGCGGCAGTGGTTGGACGCGTGAGCAAGTCTCT 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGACCCATCTCAGTTCGTTGGTACGGGTTGATGTATCTATTTGGTTTTTTGTTTTGCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCATTATGTCTCAGGGTTACCTGCCTTTTCCTAATATCGACCCCGTCTTTTTCTCGATA 175206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="mSNKTSIEGLSALLHTLMLIPQHRWITVRELQQQLALLDIHRTT
RSIKRYLDDIIVDVFNVECDSMSMPHVYRKTSEQLLKLNKQEMALLATDQQVLTTAGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EIRASQI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="GI:37197445"
/translation="MALPTIREWSDEQRQVLNAVHTALLHNRMLKISSQVLQQEKALI
EPLGLSVQCDALLLLERLSGQHTIRTLALPLIDEASVSTFSFTYPTDFNVERFWREHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (6412. .6588)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (5965. .6273)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (5965. .6273)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (6412.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="VV0521"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="VV0522"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /trans1 table=11
/product="conserved hypothetical
/protein_ic="BAC93285.1"
/db_xref="GI:37197446"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="identified by GeneMark and Glimmer2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="W0521"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rcecrecaricciaeccerrerecrecerecrecarreceracerecre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35.4%;
75.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1028.6; DB 1
Pred. No. 2.8e-307;
0; Mismatches 409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .6588)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                249150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                          667
175866
                                                                                                                                                                                                                                                                                                                                                                                    547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                       175806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         175326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     175266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

Fando, C.R.,

sequence"

```
RESULT 11
AX020429
LOCUS
                                                                                                                                            Š
                                                                                                                                                                                      밁
                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175987
                                                                                                                176827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   728
AX020429
Sequence 1 from
                                                                                                                                                                                                                                                                                   CAGTTCCATATCAAATCCAAAGATTAAAAACACTGCAGGATTTGGAAAACTTTGGGTCACTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                             CAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCGCACATTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGCTGATGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTGAGGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAAACCTGGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTTGACCTACGATGTGGGCAACAATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATTTAGAATTGTGCCGTCGCATCGTTGATGAAGGGCACTGGGTTGAAAATGAACGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATAAACGTGGCCACTATCAAGACAAAGTAACCGTGAAGTAAGGAATTGAAGTGAAACAA 175986
                                                                                                                                                                                                                        GATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGTTTTCAGTC 1687
                                                                                                                                                                                                                                                                                                                                    GAAGATCAGTTAGCACTGATGCGTGATGTGCAACTCAAGCGAGAACCGTTACAAGCGCCA
                                                                                                                                                                                                                                                                                                                                                                    CAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCCCAGCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                            CAGATTACGGGCAAGAAACCGGGCCAAGCATTCCATAAGATTGTTAATGCACATATCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTACCGCTGGGGCTGAATTTCAACATGGTCCAGGTGTATGTGTTCTTGGCGATCATGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATCACTTCTCATTGCTGGGTGATACGTTATACCTCAATAGCACAACGTTCGTGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTTCATGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCATGTACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCAATTGCGTAAAATTGTCGATGACCTGACGCGCGGAGTAGACGATCGCGGGGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAGGTGAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTGGTCATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGAACGCCAATCTCAATGATGCTTGGTTGAATAACCCATATCGCAAAGGCGATGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACATTCGAGGCTATGACAATGCGGAAGATTTTCGCAAGTTAGGTACGAAAACCTGGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTCCTTTGGTTACCACGCGTAAGAGTTTCTGGAAGGCGGCGGTTGCAGAGTTGCTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAGTTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTAAGCGCTGCCTTACTGTGATCAACGCGGATTTAACCTACGATGTTGCCAACAATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAGGTGAAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGGACAGATCTTGTCGTCACCGATGATTATTGGTGGATTGGCGCTGATGGCTTGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGGGGCAAATCCTCTCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTTGGTCT
                                                                                                                                                  TAA 1690
                                                                                                                                                                                      GATGATTTCTGGGTAGAAGGGTATGAACATCATGACCCAATCCAGTACCCATTCTCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGGCCGTGTCTACGGCGTACAAGGTCGAGCTTGGGCGAAGCCTGATGGTGGTCATATC
                                                                                                                176829
 852 bp
Patent WO9935271
                    DNA
                      07-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                               1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1147
                                                                                                                                                                                                                                                                                                                                                                      1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           176526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               176346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175926
                                                                                                                                                                                                                                                                                                                                                                                                            176646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
   맑
                            S
                                                                          밁
                                                                                                          Ś
                                                                                                                                                밁
                                                                                                                                                                              Ş
                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 845; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                              1080
                                       1260
                                                                                                              1200
                                                                                                                                                                                      1140
                                                                                                                                                                                                                                                                                                                                      1020
                                                                           362
                                                                                                                                                  302
                                                                                                                                                                                                                        242
                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         difference
   422
                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                            960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vibrio cholerae vaccine candidates and method of their constructing Patent: WO 9935271-A 1 15-UUL-1999; CAMPOS GOMEZ JAVIER (CU); LEDON PEREZ TALENA YAMILE (CU); RODRIGUEZ GONZALEZ BORIS LUIS (CU); BENITEZ ROBLES JORGE ANTONIO (CU); CENT NAC INVESTIG SCIENT (CU); FANDO CALZADA RAFAEL ALFREDO (CU); SILVA CABRERA ANISIA JUANA (CU); VALLE DIAZ EDGAR (CU)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vibrio cholerae
Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AX020429
AX020429.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Silva, C.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Campos, G.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteria; Proteobacteria; Vibrionaceae; Vibrio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTGAAAATG
   GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCA
                      GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCA 1319
                                                                                              GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                                        AGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTG
                                                                                                                                                                                                                                               CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTG
                                                                                                                                                                                                                                                                                                                     TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAA
                                                                                                                                                                                                                                                                                                                                                                        ACAATCAGTTTCCTCTAGTCACTACACGCAAGAGTTTTTTGGAAAGCCGCCGTGGCCGAGT
                                                                                                                                                                                                                                                                                                                                                                                               ACAATCAGTTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTTGCCGTAGCCGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCA
                                                                           GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                    AGGATGACATGGGACGCGTGTATGGAGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTG
                                                                                                                                                                                                                          CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAAGGTG
                                                                                                                                                                                                                                                                                                  TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                AACGAACGGCCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAGACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_...852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MRQYLDLCQRI TUDQGVWVENERTGKRCLTVINADLTYDVGNNQF

PLVTTRKSFWKAAVAELLGYINGYDNAADFROLGTKTWDANANLNQAMLNNPYRKGED

DMGRVYGVQGRAWAKEDGGHLDQLKKIVDDLSRGVUDDRGEILMFYNPGEFHMGCLRPC

MYSHHFSLLGDTLYLNSTQRSCDVPLGLNFNNVQVVVFLALMAQITGKKPGLAYHKIV

NAHIYQDQLELMRDVQLKREPFPAPQFHINPKIKTLQDLETWVTLDDFDVTGYQFHDDF

IQYPFSV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transT_table=11
/protein_id="CAC07770.1"
/db_xref="GI:10044146"
/db_xref="REMTREMBL:CAC07770"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Vibrio cholerae"
/mol_type="unassigned DNA"
/db_xref="taxon:666"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Xaa=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="unnamed protein product; thyA nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and Valle, D.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:10044145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ledon, P.T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Methionine"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 841.4; DB 6;
Pred. No. 1.7e-249;
0; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rodriguez, G.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gammaproteobacteria; Vibrionales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Benitez, R.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
```

0;

Gaps

1079

241

181 1019 121 959 61

1139

301

1199

361

1259

421

Query I Best L Matche Qy Db Qy Db Qy Db Qy Db	REFERENCE AUTHORS TITLE JOURNAL FEATURES BOURC	RESULT 12 AXO09482 LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM	00 QQ	B & B &	\$ Q \$ Q \$ Q
Query Match 28.8%; Score 838; 1.98-248; Best Local Similarity 100.0%; Pred. No. 1.98-248; Matches 838; Conservative 0; Mismatches 0; Indels 0; Gaps 0; 1 GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTT 60	ő	AX009482 AX009482 N AX009482 AX009482 AX009482.1 GI:9996767 Vibrio cholerae SM Vibrio cholerae SM Vibrio cholerae SM Vibrio cholerae Vibrionaceae; Vibrio.	1620 TCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT 1679	1500 ACATTRACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCC 1559	320 TGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT 1
REFERENCE AUTHORS TITLE JOURNAL MEDLINE PUBMED REFERENCE AUTHORS TITLE JOURNAL FEATURES FEATURES BOUITO	RESULT 13 AE006043/c LOCUS DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM	B & B & B	D Q D Q	d da da	B & B & B &
l (bases 1 to 10719) May,B.J., Zhang,Q., Li,L.L., Paustian,M.L., Whittam,T.S. and Kapur,V. Complete genomic sequence of Pasteurella multocida, Pm70 Proc. Natl. Acad. Sci. U.S.A. 98 (6), 3460-3465 (2001) 21145866 11248100 2 (bases 1 to 10719) 2 chang,Q. and Kapur,V. Direct Submission Submitted (24-OCT-2000) Department of Veterinary Pathobiology, University of Minnesota, 1971 Commonwealth Ave., St. Paul, MN 55108, USA Location/Qualifiers 1. 10719 1. 1079anism="Pasteurella multocida" /mol_type="genomic DNA" /strain="PM70" /db_xref="taxon:747"	AE006043 10719 bp DNA linear BCT 08-MAR-2001 Pasteurella multocida PM70 section 10 of 204 of the complete genome. AE006043 AE004439 AE006043.1 GI:12720282 Pasteurella multocida Pasteurella multocida Bacteria; Proteobacteria; Gammaproteobacteria; Pasteurellales; Pasteurella.	661 CCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTT	541 ACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTAT	421 ATTCGGTTTGGGANGGACGTATCGGTAACTTTANGAATACTGAACTTTGGGGACGAGT	

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                             Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="pefls"
/product="pefls"
/product="pefls"
/product="pefls"
/product="pefls"
/db_xref="gl:12720284"
/db_xref="gl:12720284"
/db_xref="gl:12720284"
/db_xref="gl:12720284"
/db_xref="gl:12720284"
/translation="msmsQlnerQQXAMEGFTGGDWQTEVNVRDFIQKNYTPYEGDES
FLADATEATTKLMNDVMEKIKVENKTHEPYDLDCDTBSTITSHARGYLDKSLEKIVGL
FLADATEATTKLMNDVMEKIKVENKTHEPYDLDCDTSSTITSHARGYLDKSLERGED1QA
FLADATEATTKLMNDVMEKIKVENKTHEPYDLDCTBSTLDTYRKTHQGVFDVYTPDIL
RCRKSGVITTGLDBAYGRGRIIGDYRRWALYGADFLMKXKNQFTGATLAAVKSQNGAA
MSFGRVSTFLDIYIERDLKAGKITEQEAQELIDHLVMKLMAVRFERTFBEVDQLFSGDP
MMATETLAGNGLDGRFTLDTKNGSFRILHTLYTMGPSFEPMLTILMSEKLPEGFRXYAAK
VSIDTSSVQYENDDLMRPDFQNDDYAIACCVSPMIVGKMMQFFGARANLAKTLLYAIN
GGVDEKKGDOYGFKTDPITSEYLDYDDVMTRLDSFMDMLAKGYVTDALNIIHFMHDKYA
YEAALMALHDRDVFRTMACGIAGLSVAADSLSAIKYAKVKPVRGDIEIKKKAGEVUGI
AKDVALDFEIEGEYPQFGNNDMRVDEIACDLVERFMKKIQKLGTYRNATPTQSVLTIT
SNVVYGKKTGNTEDGRRSGAPFGFGANEMHGRDQKGAVASLTSVAKLPFAYAKDGOISY
SNVVYGKKTGNTEDGRRSGAPFGFGANEMHGRDQKGAVASLTSVAKLPFAYAKDGOISY
SNVVYGKKTGNTEDGRRSGAPFGFGANEMHGRDQKGAVASLTSVAKLPFAYAKDGOISY
SNVVYGKKTGNTEDGRRSGAPFGFGANEMHGRDQKGAVASLTSVAKLPFAYAKDGOISY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QINEYLHAPVKKEALHIIWAGGNDLATVLATAVTKTTPEEKQAYVLASINTMAQTMAQ
QWGALOQAGVNQIIAPTIPNITYTPEEFDKLGEAGAQIQAKSYGLIKQSDFVANFKA
AAEQLLVQPTKNLEEFEKHRVQTLEKAAEDFYNSRYWFFQILLKQSDFVANKGIAETLI
KEYKTIVEQAAQATAFLINASITSALNOVGGNIVRIDTDGLLKDMMTREAFVGLINTTI
VUCKESTADPAKPACKPEDQTAASQRLFADSFHPGFTAHKAMSDYILNVLQTPKDMGI
LTQIVQQQTELALDFIRTESINHHRLQQQSAQSVDTLAAYQKQKGHSLHVGAKVQFND
QWQLALVASQQKQDVQQGLININTQNRYLSTALAYDADNWHLGSVLQVNNTTLTTDRV
AYIGHSAHQQSAETEABSFSMGLFAGYEMKFKALGIALIADLMKTKTDVAGFGEQNRG
ITQMQFAARTEKSVRSGVGFDLRYQAASWQPYYTTRWVKEMINDLFTIQASIMGSSFM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="est"
/codon start=1
/codon start=1
/trans1 table=11
/trans1 table=11
/product="Bst"
/prod
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="est"
/note="synonym: PM0076"
3659. .5698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MKSEESTSTCMV8PTKMAQIGEDVGVYKATKKQIYSFFSAIPAGAFIALAFVPFAATQTGNGDAPMGLTKLVGGIVFSLGVIMVVVCGSELFTSSTMTAVARVSGRISTFQMLRNWLVYYGGNFVGALFIVLLTWFAGQIMANGQWGLTILKTAQHKHHHTWTEAFALGIFCNIMVCIAVMMTYAGKTLLDKAVIMILPISMTVASGEEHSVAANFMIPMGMALAFFASFFFWQAVSLNPAQFADLDMYHFVVKNLIPVILGNIVGGALCVALTQ
/protein_id="AAK02161.1"
/db_xref="G1:12720286"
/tamslation="MAVVGRIHSYESCGTVDGPGIRFILFMQGCLMRCQYCHNRDTWD
/tramslation="MAVVTYRHFMNASGGGVTASGGEAVLQAEFVRDWFSACKKEGIHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TVLPSQDNQWVNIVAGLHFKPISSGFHANLAFRRDLGRKNALSNTTLQAGIGFTF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3659.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KYPQLTIRVSGYAVRFNSLTKEQQQDVITRTFTQAM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TFS I VPNALGKDYEAQKRNLAGLMDGYFHHEAT I EGGQHLNVNVMNREMLLDAMENPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1156. .3486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WYINRPH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="act"
/note="synonym:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="pflB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="pflB"
/note="synonym:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1156.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="AAK02158.1"
/db_xref="GI:12720283"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'gene="PM0074"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="PM0074"
                                                                                                                                                                                                                         product="Act"
                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                     gene="act"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PM0077"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PM0075"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
```

```
/codon_start=1
/trans1_table=11
/product="Lgt"
/protein_id="AAK02164.1"
/db_xref="GI:12720289"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="unknown"
/protein_id="AAK02162.1"
/protein_id="AAK02162.1"
/db_xref="GI:120287"
/translation="MOSDMDEKWMRHALRLADKAEQLGEIPVGAVLVDEQGNILGEGW
/translation="MOSDMDEKWMRHALRLADKAEQLGEIPVGAVLVDEQGNILGEGW
NLSISSSDPTAHAEIVALRQGGQRLQNYRLLNTTLYVTLEPCTMCAGAILHSRIKRLV
FGASDYKTGAVGSRFHFFDDYKMNHAIEITAGVLQEECSQKISAFFQKRREQQKIAKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLDTNGFVRNYDHVIDELLDVTDLVLLDLKQLNDKIHQNLIGVPNKRTLEFAQYLAKR
NQPVWIRYVVVPGYTDADEDIHLLGHFIKDMKNIEKVELLPYHRLGAHKWEAMGEKYE
LEEVNPPTKESLEHIKSILBSYGHIIKY"
                                                                                                                                                                                                                                                   /translation="mftffliclavgafagflaglfgigglvivpvlvylmekyvgv
framymacalgtsfarivirgfssagrhhklgnvmdyvkylapvimittfisgefis
ylpkdisarlfaclviylaikmflsvkpkpvkkltkatiiagiligmassaagigg
ggfyvpflnsrgidmkkaigssavcgsllaiagmlsfmiagmkvegllfbysmgyvylp
alvoitltsiftskigatvysilpvpilkkafalmllilainmilk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="mQSNYFSFPQFDPVIFEIGPIGLRWYGLMYLLGFLFARWLAVKR
ANQTGSGWTTDQVDSLLFNGEMGVFLGGRIGYVLFYGLGPBYFLDGAYLFRVWEGGMSF
HGGLLGVILAMLITAXIQKRGFWGVFLAGRIGYVLFYGLGMSTIGNFUNDLAFLFRWEGGMSF
WAVLFPSGGYLPRHPSQLYEAVLEGIVLFFILMWYIKKPRPIGATAGLFLLGYGIFRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLITTRKSYWKAAIABFLGYIRĞYDNAADFRKLGTKTWDANANENSAKLNNEHRKGTD
DMGRVYGOGAAWRKENGETVDQLIKLIVNILENGIDDRGEIMTENPGBFELGLERPC
MHTHTPSLLGDTLYLITSYQBSCDVPJLGLNENGIDVFTFLALMAQITGKKAGKAYHKII
NAHIYEDQLDLMKNVQLKRDPFPLPQLHINPEIKTLEDLETWVTMDDFKVTGYQCHDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="synonym: PM0079"
complement(7334. .8185)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (6819. .7319)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="synonym: PM0080"
complement(8182. .8994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
/product="ThyA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (7334. .8185)
/product="unknown"
/protein_id="AAK02166.1"
/db_xref="GI:12720291"
                                                                                                                                                                        complement (9801.
                                                                                                                                                                                                                         complement (9801. .10397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (9004. .9798)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (9004. .9798)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IVEFFREPDAQLGLYFGQHISMGQILSTPMILIGAVIMLVAYQSAGKKREIL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (8182. .8994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KSHLET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="PM0078"
                                                                                                                                                                                               /gene="PM0082"
                                                                                                                                                                                                                                                                                                                                                                                          /product="unknown"
/protein_id="AAK02165.1"
/db_xref="GI:12720290"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="PM0081"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein_id="AAK02163.1"
/db_xref="GI:12720288"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="thyA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'gene="PM0078"
                                                                                     codon_start=1/transl_table=
                                                                                                                                            'gene="PM0082"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="PM0081"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="lgt"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="lgt"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KYPFSV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="thyA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translation="MKHYLELCQRIVDEGVWVENARTGKRCLTVIDADLTYDVANNQF
                                                                                        table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PM0080"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PM0079"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .7319)
```

/trānslation="MIDFDGYRPNVGIVICNSKGQVLWAKRYGQNSWQFPQGGINDNE SAEQAMYRELFEEVGLSPKDVKILYISKHWLRYKLFKRLLRYDSKPVCIGQKQRWFLL QLVSDEKNINWQSSKSPEFDGWRWVSFWYPVRQVVSFKKEVYRKAMKEFASVLFDGAK

```
В
                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                          á
                 S
                                                밁
                                                                           ş
                                                                                                           밁
                                                                                                                                     ঠ
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                  · 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity Matches 1161; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              y Match
                                                 8123
                                                                                                                                                                        8224
                                                                                                                                                                                                                                     8284
                                                                                                                                                                                                                                                                                                8344
                                                                                                                                                                                                                                                                                                                                                           8404
                                                                                                                                                                                                                                                                                                                                                                                                                        8464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9004
                    961
                                                                                                                                         841
                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                        604
                                                                                                                                                                                                                                                                                                                                                                                                                                                     544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
CAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAGTT
                                                                                                                                                                                             TATCTCCATGGGACAAATTCTCTCCACACCAATGATTCTCATTGGTGCGGTAATCATGTT
                                                                                                                                                                                                                                                                                                               CTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCT---GTTTGGTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGACGAGTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAAAATACAAAAACGGGGTTTCTGGCAAACGGCGGATTTTGTGGCGCCGTTGATTCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATCGGTCCTATCGGTŢTACGTTGGTATGGCTTAATGTATCTGCTGGGGTTTCTCTTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCGGCCCTCTAGCGGTGCGCTGGTATGGATGTATTTGGTGGGTTTCCTTTTTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTC
                                                                   ACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCAA
                                                                                                             GAAACACTATTTAGAACTTTGCCAACGTATCGTTGATGAAGGTGTTTGGGTTGAAAATGC
                                                                                                                                      GAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATGA
                                                                                                                                                                        AGTGGCATATCAAAGTG
                                                                                                                                                                                                                                                                  CATTTCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGT
                                                                                                                                                                                                                                                                                                                                                           AAAGCCTCGACCAATCGGCGAACCGCTGGTTTATTCTTACTCGGTTACGGTATTTTCCG
                                                                                                                                                                                                                                                                                                                                                                                        TAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                       GCTATACGAAGCGGTATTAGAAGGCATTGTGCTATTCTTATTCTGAATTGGTATATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCTTAGGTATGGGACGCATCGGCAACTTTATCAATGACGAATTGTGGGGGGCGTGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGCGGTATGTCTTTCCATGGTGGCTTAATTGGTGTGATTTTAGCCATGTTAATCACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCGGCATGTCCTTCCACGGCGCCTTATTGGGTGTCATCACCGCCATGTTCTGGTATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGTTGGCTTGCGGTGAAACGTGCTAATCAAACAGGCAGTGGCTGGACAACAGACCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGAATTTTATGCAATCGAATTATTTTTCATTTCCACAATTTGATCCCGTCATTTTTGA
                                                 ACGGACTGGCAAACGTTGTCTGACCGTGATTGATGCGGATCTCACCTACGATGTTGCCAA
                                                                                                                                                                                                                                                                                              TTTTATCGTTGAGTTTTTCCGTGAGCCTGATGCCCCAATTAGGCTTATATTTTTGGTCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENLLSSKSNESDLKTHHTTKKSTFLTKHSKKHFHKSRG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 814.8;
Pred. No. 5.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ore 814.8; DB 1; ed. No. 5.2e-241; Mismatches 507;
                                                                                                                                                                        -----CGGGTAAAAAAAGGGAAATATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22,
                                                                                                             8124
                                                                                                                                                                                                                                                                                                                                                           8345
                                                                                                                                                                                                                                                                                                                                                                                                                       8405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8945
                                                 8064
                                                                                                                                                                                                                                                                                                8285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8885
                                                                                                                                                                                                                                                                                                                                                                                        663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                     KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                             RESULT 14
AF064791
                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                 FEATURES
                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                FOCUS
                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                          7343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1501
                                         Moreno,J.A., Bosch,M., Badiola,I., Llagostera,M.
Direct Submission 1998) Departmento De Genetica
Submitted (12-MAY-1998) Departmento De Genetica
(Unidad De Microbiologia), Universidad Autonoma
Edificio Cn, Bellaterra, Barcelona 08193, Spain
Location/Qualifiers
                                                                                                                                                      Bacteria; Proteobacteria; Gammaproteobacteria; Pasteurellaceae; Pasteurella.
                                                                                                                                                                                   Pasteurella multocida
Pasteurella multocida
                                                                                                                                                                                                                                   AF064791
AF064791.1
                                                                                                                                                                                                                                                                              AF064791 1893 bp
Pasteurella multocida thymidylate
                                                                                                                                                                                                                                                                                                                                                                           CTCTGTGTAA
                                                                                                                                                                                                                                                                                                                                                                                                       TTCAGTCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTTGCCACAATTACACATTAACCCCCGAGATTAAAACTCTCGAAGATTTAGAAACTTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCGCCTCAGTTTCCATATCCAATCCAAAGATTAAAAACACTGCAGGATTTGGAAACTTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATGGCACAAATTACGGGCAAAAAAGCGGGTAAGGCGTACCACAAAAATCATCAATGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGGCACAGATCACAGGGAAAAAGCCCGGGCTTGGCGTATCACAAGATCGTCAATGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTTGCGCCCTTTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGATGATATGGGACGTGTTTATGGCGTACAAGGGCGTGCATGGCGCAAACCGAACGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTAGGTTATATCCGTGGCTATGACAATGCGGCAGATTTCCGCAAACTCGGCACCAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCCAATTAGGTTACCAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TAACCAATTTCCGTTGATCACCACACGCAAAAGCTATTGGAAAGCGGCAATTGCAGAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTATGGATGATTTTAAGGTCACGGGCTATCAATGCCACGATGCCATTAAATATCCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATTTATGAAGATCAACTTGATCTCATGAAAAATGTGCAATTAAAACGTGACCCCTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGTGATGTGCCGCTTGGCTTGAATTTCAACCAAATTCAAGTGTTCACCTTTCTTGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCACACCCACACCTTCTCATTACTCGGTGATACCCCTCTATCTCACCAGTTATCAGCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGAAATCATGACCTTCTTCAACCCCGGTGAATTTGAACTGGGTTGCCTACGTCCTTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACCGTCGATCAATTGCGCAAAATCGTCAATAATCTGCGCAACGGCATTGATGACCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGGATGCCAATGCTAATGAAAAACAGTGCATGGCTCAATAATCCGCACCGCAAAGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTGA
                                                                                                                                        (bases 1 to 1893)
/organism="Pasteurella
/mol_type="genomic DNA"
                                .1893
                                                                                                                                                                                                                                      GI:18000047
                                                                                                                                                                                                                                                                                                                                                                          7334
                                                                                                                                                                                                                                                                                                                                                                                                        1690
                                                                                                                         Badiola, I., Llagostera, M.
                   multocida
                                                                                                                                                                                                                                                                                DNA
synthase
                                                                                                                                                                                                                                                                                linear
(thyA)
                                                                                                                                                                        Pasteurellales;
                                                                              Y Microbiolog
De Barcelona,
                                                                                                                             and Barbe, J.
                                                                                                                                                                                                                                                                              gene,
                                                                                           Microbiologia
                                                                                                                                                                                                                                                                                  complete
                                                                                                                                                                                                                                                                                                31-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7704
```

```
В
                                                                                                                                                                                               5
                                                                                                                                                                                                                       B &
                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                       음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                밁
                                 δ
                                                            占
                                                                                      Ş
                                                                                                                      Вр
                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match

Best Local Similarity

Matches 1119; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                 649
                                                                                            646
                                                                                                                        589
                                                                                                                                                  586
                                                                                                                                                                             529
                                                                                                                                                                                                       526
                                                                                                                                                                                                                                  469
                                                                                                                                                                                                                                                          466
                                                                                                                                                                                                                                                                                     409
                                                                                                                                                                                                                                                                                                               406
                                                                                                                                                                                                                                                                                                                                         349
                                                                                                                                                                                                                                                                                                                                                                  346
                                                                                                                                                                                                                                                                                                                                                                                              289
                                                                                                                                                                                                                                                                                                                                                                                                                       286
                                                                                                                                                                                                                                                                                                                                                                                                                                                  229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         109
                709
                                         706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46
                                                                                     TGGATACGGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGG
                                                                                                                         CCYGAAWITGGTATATCAAAAACCTCGACCAATCGGTGCAACSCTTGGTTTATTCTTACT
                                                                                                                                        TCTTAATTGGTTATTGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGC
                                                                                                                                                                              ACCACGGCATCCMTCACAGCTATACGAGCGGTATTAGAAGGCATTGTSCTATTCCTTAAT
                                                                                                                                                                                               GCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTAT
                                                                                                                                                                                                                                  ATTGTGGGGGGGTGTCACGGATGTGCCATGGGCAGTCTTATTCCCATCAGGCGGRTATTT
                                                                                                                                                                                                                                                           ACTITGGGGACGAGTAACGGATGTGCCTTGGGCCTTTTGTATTCCCTAATGGTGGCCCACT
                                                                                                                                                                                                                                                                                                         TGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGA
                                                                                                                                                                                                                                                                                                                                                                  CGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTGT
                                                                                                                                                                                                                                                                                                                                                                                                              TTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGGCGCATTGGTTACGTTGTTTTATCAATTCGATTATTTCTTACAAGATCCTGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTGCTGACCCTCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGACAACAGACCAAGTGGATAGCCTGTTATTTAACGGTTTTTATGGGCCGTTTTTTTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGTAGTGATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGGGGTTTCTCTTTGCCCGTTGGCTTGCCGGTGAAACGTGCTAACCAAACAGGCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGATCCCGTCATTTTTGAAATCGGTCCTATCGGTTTACGTTGGTATGGCTTAATGTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCCTTGATGTATTT
                  CTTATATTTTGGTCAACACATCTCTATGGGACAAATTCTCTCCACACCAATGATTCTCAT
                                         TCT---GTTTGGTGGCTTCATTTCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCAT
                                                                    CGGTTACGGTATTTTCCGTTTATCGTTGAGTTTTTCCGTGAGCCTGATGCCCAATTAGG
                                                                                                                                                                                                                                                                                                                                           AGCCATGTTAATCACGGCTAAAATACAAAAACGGGGTTTCTGGCAAACGGCGGATTTTGT
                                                                                                                                                                                                                                                                                                                                                                                              TTTATTCCGTGTTTGGGAAGGCGGTATGTCTTTCCATGGCGGCTTAATTGGTGTGATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/trans[_table=11
/product="hymidylate synthase"
/protein_id="AAL54880.1"
/protein_id="AAL54880.1"
/grotein_id="AAL54880.1"
/db_xref="G::18000048"
/db_xref="G::18000048"
/translation="MKHYLELCORIVDEGVMVENERTGKRCLTVIDADLTYDVANNQF
/translation="MKHYLELCORIVDEGVMVENGTUDANANENSAMLNNPHRKGTD
DMGRVYGVQGRAWRKPMGETUDDLTKITVMLRNGIDVFFTLALMAQITGKKAGKAYHKI
MHTIFESLLGDTLYLITSYQRSCDVFLGLNFNOIQVFTFTLALMAQITGKKAGKAYHKI
NAHIYEDDLDLMKNVQLKREFFFPLPQLHINPEIKTLEDLETMVTMDDFKVTGYQCHDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="thyA"
826. .1677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /specific_host="bovine"
/db_xref="taxon:747"
826. .1677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           strain="PM25"
                                                                                                                                                                                                                                                                                       TGATTCCATTTGGCTTAGGTATGGGACGGATCGGCAACTTTATCAATGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   number="2.1.1.45"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 775.2;
Pred. No. 7.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; DB 1;
7.8e-229;
hes 505;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                       468
                                                                                                                                                                                                                                                                                                                465
                                                                                                                                                                                                                                                                                                                                                                    405
                                                                                                                         648
                                                                                                                                                  645
                                                                                                                                                                             588
                                                                                                                                                                                                       585
                                                                                                                                                                                                                                  528
                                                                                                                                                                                                                                                           525
                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105
                                                                   708
                                                                                              705
                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               225
                  768
                                           762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N
RESULT 15
U32772
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                        Ś
                                                                                                                                                                                 음 성 음
                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                    성 함
                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  정 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ఠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                       1650
                                                                                                                                                                1663
                                                                                                                                                                                           1590
                                                                                                                                                                                                                     1603
                                                                                                                                                                                                                                                                                                   1470
                                                                                                                                                                                                                                                                                                                              1483
                                                                                                                                                                                                                                                                                                                                                       1410
                                                                                                                                                                                                                                                                                                                                                                                1423
                                                                                                                                                                                                                                                                                                                                                                                                            1350
                                                                                                                                                                                                                                                                                                                                                                                                                                     1363
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1003
                                                                                                                                                                                                                                              1530
                                                                                                                                                                                                                                                                       1543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         823
                          U32772
Haemophilus in
U32772 L42023
U32772.1 GI:1
  Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCGTTGATGACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGATTTGGAAACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGA
                                                                                                                                                                                                                                                                     AAAACGTGAGCCATTCCCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAAACACTGCA
                                                                                                                                                                                                                                                                                                                CAAGATCGTCAATGCGCACATTTACCAAGATCAACTCGAATTGATGCGCGGATGTGCAGCT
                                                                                                                                                                                                                                                                                                                                                        GTTCACCTTTCTTGCCTTGATGGCACAAATTACGGGCAAAAAAGCGGGTAAGGCGTACCA
                                                                                                                                                                                                                                                                                                                                                                        TTATGTGTTCCTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCA
                                                                                                                                                                                                                                                                                                                                                                                                                          CAACAGTACTCAGCGTTCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGTTTGCGCCCTTGCATGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTTACCGTAAAGGTGAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAATTAGGTACCAAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCTGCCGTAGCCGAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCTACGATGTTGCCAATAACCAATTTCCGTTGATCACCACACGCAAAAGCTATTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCTACGATGTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGTTTGGGTTGAAAATGAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGTGCGGTAATCATGTTAGTGGCATATCAAAGTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGTATTTTGATGATGGTTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGC
                                                                                                                                       TGCCÁTTAAATÁTCCTTTCTCTGTGTAA
                                                                                                                                                                TCCTATTCAATACCCGTTTTCAGTCTAA
                                                                                                                                                                                                                                              AAAACGTGAACCCTTCCCCGTTGCCACACTTGCACATTAACCCCCGAGATTAAAACCCCTCGA
                                                                                                                                                                                                                                                                                                   CAAAATCATCAATGCACACATTTATGAAGATCAACTTGATCTCATGAAAAATGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                            CACCAGTTATCAGCGTTCTTGTGATGTGCCGCTTGGCTTGAATTTCAACCAAATTCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGCCTACGTCCTTGCATGCACACCCACACCTTCTCATTACTCGGTGATACCCTCTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCATTGATGACCGTGGTGAAATCATGACCTTCTTCAACCCCGGTGAATTTGAACTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCAAACCGAACGGTGAAACCGTCGATCAATTGCGCAAAATCGTCAATAATCTGCGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCTAAGCCTGATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCGCACCGCAAAGGCACCGATGATATGGGACGTGTTTATGGCGTACAAGGGCGTGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAAACTCGGCACCAAAACCTGGGATGCCAATGCTAATGAAAACAGTGCATGGCTCAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCGGCAATTGCAGAATTTTTAGGTTATATCCGTGGCTATGACAATGCGGCAGATTTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            influenzae
                                                     11545 bp
Rd sectio
    Rd
     KW20
                                                       section
                                                                                                                                        1677
                                                                                                                                                                  1690
                                                         87
                                                       DNA
87 of
                                                         163
                                                         얁
                                                         the
                                                         complete
                                                                     BCT
                                                                     29-MAY-1998
                                                      genome.
                                                                                                                                                                                             1649
                                                                                                                                                                                                                     1662
                                                                                                                                                                                                                                                 1589
                                                                                                                                                                                                                                                                            1602
                                                                                                                                                                                                                                                                                                                               1542
                                                                                                                                                                                                                                                                                                                                                                                                              1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 869
                                                                                                                                                                                                                                                                                                      1529
```

41014952 /gene="HI0905" /note="similar to GB:J01710 SP:P00470 PID:147987 PID:42685	CDS	" 7051811 /gene="HI0900"	gene
	gene	/ translation="wifslivatitunvigkungmehlpallawfkowtigkfvimg RKTFRSIGRFLFKRTNIVLSROLFEHEGVIKKOSFESAVNDFVRDFDEILMIGGGELFK QYLPKADKLYLTQIQTELDGDTFFPQLNWEEWEIEFDEYRKADEQNRYDCRFLILTRK	
RRANR PNSGWT VDQVDSLL FNGFMGVF I GGRVGDVFFYNLDHFLQEFLYL FRVWEGGM SFHGGL I GVI VAMIWTSYSQKRNFWQTAD FVAPLI PFGLGLGR I GNF I NLELWGRETN VPWAMI F PND PLLL PRHPSQLYEAFLEGLVLFT I INI FIKK PRPWASVAGLFLI GYGV		/product="dihydrofolate reductase (folA)" /protein_id="AAC22559.1" /db_xref="GI:1573919"	
/procenn id="AAC2253.1" /db_xref="GI:1573923" /translation="MNSNYLLLPHFDPS1FTLGDSNIGLRWYGLMYLLGFVFARWLAV		similarity; putative" /codon_start=1 /trangl_table=11	
<pre>/transT table=11 /product="prolipoprotein diacylglyceryl transferase (lgt)"</pre>		/note="similar to GB:D10483 SP:P00379 GB:J01609 GB:V00276 GB:X05108 percent identity: 53.16; identified by sequence	
<pre>by sequence similarity; putative" /codon start=1</pre>		complement (122604)	CDS
/yelle-minove /note="similar to SP:P37149 GB:U12289 PID:516036 PID:882720 GB:U00096 percent identity: 62.78; identified		/ Complement (122604) / Gene "HI0899"	gene
/gene="HI0904" 32854091 /	CDS		
AVLGITATSFFTSKLGASATAKLÞVSTLKKGFALFLIVVAINMFLK" 32854091	gene		FEATURES source
LDREISAKIPACLVVYLATKMVLSIKKDQVTTKSLTPLSSVIGGILIGMASSAAGIGG GGFIVPFLTARGINIKQAIGSSAFCGMLLGISGMFSFIVSGWGNPLMPEYSLGVIYLP		The whole genome was shifted by 588 nucleotides for a new start On Sep 30, 1996 this sequence version replaced gi:1221622.	REMARK
/ WITH THE TOTAL TO THE TENERAL TO THE TOTAL THE TOTAL TO THE TOTAL TOTAL TO THE TO		Submitted (28-mAY-1998) The Institute for Genomic Research, 9712 Medical Center Dr. Rockville. MD 20850. USA	JOURNAL
/product="conserved nypothetical procesh" /protein id="AAC2562.1" /dh wraf="d1.157392"		white, U., Clayton, K.A., Kerlavage, A.K., Fleischmann, K.D., Peterson, J., Hickey, E., Dodson, R. and Gwinn, M. Divect Submission	TITLE
/transl table=11		545)	REFERENCE
artal .	٠	incorporated their annotation into the /notes fields of the	
<pre>/note="similar to GB:L77117 SP:Q57883 PID:1591145 percent identity: 28.84; identified by sequence similarity;</pre>		<pre>improved, and a number of frame shifts have been corrected. We gratefully acknowledge the work of Tatusov et. al. We have</pre>	
24823276 /gene="HI0902"	CDS	The H. influenzae sequence has been updated by R. Fleischmann. New database matches have been assigned, product names have been	REMARK
24823276 /qene="HI0902"	gene	Submitted (27-SEP-1997) The Institute for Genomic Research, 9712 Medical Center Dr, Rockville, MD 20850, USA	JOURNAL
QLVSDEKNINMQTTKSPEFDGWRWVSFWYPVRQVVSFKRDVYRKVMKEFASILFTDNP LIFSASREANSLHYSANKKYSQTKYTKRHFYKSRGQ"		hite,O., Clayton,R.A., Kerlavage,A.R. and Fleisch irect Submission	AUTHORS TITLE
translation="MIDFDGYRPNVGIVICNRKGQVLWAKRCGQNSWQFPQGGINDNE" SAEQAMYRELHEEVGLQPKDVRLLYVSKHWLRYKLPKRLLRYDSKPMCIGQKQRWFLL		MD 20850, USA	REFERENCE
/protein_id="AAC22561.1" /db_xref="GI:1573921"		0	JOURNAL
/transl_table=11 /product="conserved hypothetical protein"		White, O., Clayton, R.A., Kerlavage, A.R. and Fleischmann, R.D.	AUTHORS
sequence similarity; purative: /codon start=1 /codon tart=1		8805245	PUBMED
/note="91milar to rin:82/23 GB:000096 Sr:Q46930 PID:1789194 percent identify: 77.71; identified by		whole-genome comparison with Escherichia coii Curr. Biol. 6 (3), 279-291 (1996)	JOURNAL
/gene="HI0901"	CDS	Metabolism and evolution of Haemophilus influenzae deduced from a	TITLE
/gene="HI0901"	gene gene	Tatusov, R.L., Mushegian, A.R., Bork, P., Brown, N.P., Hayes, W.S.,	AUTHORS
~~			MEDLINE
AEQLYLLTDQQGLFDSDFRKNFEAKLLFVVEQTTDHIRSIAGSGTNLGTGGMMTKLI AADVATRSGIETIIAFGNRFNVIADLAYEQNIGTKFIAHQSDRLESRKQWLFAAFSAG		Influenzae Rd Science 269 (5223), 496-512 (1995)	
TRADI EDRERFENARDTLYALLDNHI I PVINENDAVATABI KVGDNDNLSALVAILVQ		Whole-genome random sequencing and assembly of Haemophilus	TITLE
/W_XLEL="GI:13/372V" /translation="MMKKTIVVKFGTSTLTQGSPKLNSPHMMEIVRQIAQLHNDGFRI /translation="MMKKTIVTKFGTSTLTQGSPKLNSPHMMEIVRQIAQLHNDGFRI		Geoghagen, N.S., Gnehm, C.L., McDonald, L.A., Small, K.V., Fraser, C.M.,	
(proB)" /protein id="AAC22560.1" /ah		Kelley, J.M., Weldman, J.F., Phillips, C.A., Spriggs, T., Heddiom, E., Cotton, M.D., Utterback, T., Hanna, M.C., Nguyen, D.T., Saudek, D.M., Donadon, B. G., T. C.,	
<pre>/transT_table=11 /product="glutamate 5-kinase (gamma-glutamyl kinase)</pre>		Merrick, J.M., McKenney, K., Sutton, G.G., FitzHugh, W., Fields, C.A., Gocayne, J.D., Scott, J.D., Shirley, R., Liu, L.I., Glodek, A.,	
identified by sequence similarity; putative" /codon start=1		Fleischmann,R.D., Adams,M.D., White,O., Clayton,R.A., Kirkness,E.F., Kerlayage,A.R., Bult,C.J., Tomb,J., Dougherty,B.A.,	
/gene="atuyuv" //gene="similar to GB:U00096 SP:P07005 PID:1208988 /note="similar to GB:U00096 SP:P07005 PID:1208988		pacterra; rroteopacterra; wammaproteopacterra; rasteurerrates; Pasteurellaceae; Haemophilus. 1 (hagas 1 to 115/5)	D S T S T S T S T S T S T S T S T S T S
7051811	CDS	uenzae Rd	ORGANISM

	236 GGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTGCTGACCCTCTTTATTTA	176 GAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGAATCGGTGGCCGAGTT 235	116 CTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGT 175	62 TCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTC 115	2 AGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCCAATATTGACCCCGTATTGTTT 61	744.2; DB 1; Length 11 NO. 4.9e-219; matches 538; Indels	/gene="HI0908" 58956197 /gene="HI0908" /note="hypothetical protein; identified by GeneMark;	/translation="MENKAERYQKAVNITDVLEQSPFAKIIKKGLAINEINQKFNRIF PQEFHGKFRIGNMTDNSIFIETANAIVRQGILFRQTELLKLIQEEFPQVTGFEITINP GF" 5895 6197	<pre>/transT_table=11 /product="H. influenzae predicted coding region HI0907" /protein_id="AAC22569.1" /db xref="GI:1573930"</pre>	/gene="H10907" /note="hypothetica putative" /codon start=1	GOMPlement (5501 .5815) GOMPLEMENT (5501 .5815) COMPLEMENT (5501 .5815)	/db xref="gt:1573925" /db xref="gt:1573925" /translation="mddakyrsbefdekmmryaleladkaealgelpvgavlvddarni /translation="mddakyrsbefdekmmryaleladkaealgelpvgavlvddarni Igegwnls1vgsdprahaeiialangakniqnyrllnstlyvtlepctmcagaiihsr Ikrlvegasdyktgalgsrehppddykmnhtlevtsgyllaeecsqklstpfqqkrreek	odon start=1 ransI_table=11 roduct="conserved hypo		gene 49525473 /gene="H10906" CDS 49525473	PLITTKSYWKAAIAEFLGYIRGYDNAADFRALGTKTWDANANENAAWLANPHRRGVD DMGRYYGVQGRAWKKENGETIDQLEKIVNNLTKGIDDRGEILTFFWPGEEPLGCLREC MHTHTFSLVGDTLHLTSYQRSCDVPLGLNFNQIQVFTFLALMAQITGKKAGKAYHKIV NAHIYEDQLELMRDVQLKREPFPLPKLEINPDIKTLEDLETWVTMDDFKVVGYQSHEP IKYDPSV"	/product="thymidylate synthetase (thyA)" /protein id="AAC22564.1" /db_xref="G1:1573924" /translation="MKQYLEUCRRIVSEGEWVANERTGKHCLTVINADLEYDVANNQF	<pre>similarity; putative" /codon_gtart=1 /transf_table=1;</pre>
QY	1313 CCTTGCATGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTAGTGCTACACAGACACTTTTCATTGCTGGGGGGATACTTTACATCTTACATCTTACCTAGCTATTGTGGGGGGATACTTTACATCTTACCTAGCTATTACATCTTACCTAGCTATTACATCTTACCTAGCTATTACATCTTACCTAGCTATTACATCTTACCTAGCTATTACATCTTACTAGCTATTACATCTTACTAGCTATTACATCTACATCTACATCTACATCTACATCTACATCTACATCTACATCTACATCTACATCTACATCTACATCTACATCAT	4515 GATAGAAGAAGATTTTAAACTTTTTTAACCCTGGGGAATTTGATCTTGGTTGTCTTCGT	1253 GACCGARGETGARARTTCTTRARCTTCTRACARTCTGARARTTCTCACATGCTGTTTTGCGC		4335 ACGADADACTTGGGATGCTAATGCGAATGADAATGCAGCTTGGCCTTAGCCTTAGCCTTAGCCCTTAGCCTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTAGCCTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCCTTAGCTTAGCCTTAGCCTTAGCCTTAGCTTAGCTTAGCTTAGCTTAGCTTAGCCTTAG	OY 1013 GCCGAGTTGCTCGGCTAFATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGT 1072	QY 953 GTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTA 1012	Qy 893 GAAAATGAACGAACGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGAT 952		Qy 773 ATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGT 832	Qy 713 GGTGGCTTCATTTCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTG 772	3 GGTACATTCCGCTTCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTT	Qy 593 TGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATAC 652	Qy 533 CATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAAT 592	3753 CGCGAAACGAATGGCCTTGGGCAATGATTTTCCCGAATGATCCTCTTTTACTGCCTCGT	Qy 416 GTGCCATTCGGTTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGA 475		Db 3573 GTTTGGGAAGGTGGAATGTCGTTCCACGGTGGCTTAATTGGTGTAATTGTTGCTATGATT 3632

9 9 9 9 9 9 9 9

ਲੌ	4635	
न्द	1433	1433 CTTGCGCTGATGGCACAGATCACAGGGAAAAAAGCCGGGCTTGGCGTATCACAAGATCGTC 1492
ŏ	4695	4695 TTAGCACTTATGGCTCAGATCACGGGCAAAAAAAGCCGGCAAGGCATATCATAAAAATTGTG 4754
ऱ	1493	AATGCGCACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAG 1552
ਲ	4755	AATGCGCATATTTATGAAGATCAGCTTGAGTTAATGCGTGACGTACAACTTAAAACGCGAG 4814
₹	1553	1553 CCATTCCCAGCCCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAA 1612
ਲੌ	4815	4815 CCTTTCCCATTACCAAAATTAGAAATTAATCCAGATATAAAAACGCTTGAAGATTTGGAA 4874
•₹	1613	1613 ACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTTCCACGATCCTATTCAA 1672
ਰ	4875	4875 ACTTGGGTCACGATGATTTTAAAGTCGTTGGCTATCAATCCCACGAACCAATTAAA 4934
*	1673	1673 TACCCGTTTTCAGTCTAAT 1691
ਰ	4935	TATCCTTTTTCCGTCTAAT 4953

Search completed: July 31, 2004, 15:38:59 Job time: 7462 secs

This Page BICAN (USPAC)

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
 000
                                                                                                             O
                                                                                                                                                                                                        n
                                                                                                                                                                                                                                               No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92:
                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                 1222
1112.6
842.4
842.4
 838
744.2
505.4
462.2
403.8
403.8
278.2
278.2
278.2
278.2
277.8
227.8
204.8
204.8
208.4
1161.2
1156.4
                                                                                                                                                                                                                                              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq
geq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                               Match
                                                                               100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3373863 seqs, 2124099041 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-700-712A-1
2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       July 31, 2004, 07:32:25 ; Search time 761 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                          N_Geneseq_29Jan04:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gagaaggtttgttatgcctc.....cagcgaaatcggcgctgcag 2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Copyright
                                                             . . . . . . . . .
                                                                                                                                                                                                                                                                                                                                                  geneseqn2003cs:*
                                                                                                                                                                                                                                                                                                                                                           geneseqn2002s:*
geneseqn2003as:*
geneseqn2003bs:*
                                                                                                                                                                                                                                                                                                                                                                                         geneseqn2001as:*
geneseqn2001bs:*
                                                                                                                                                                                                                                                                                                                                                                                                                       geneseqn1990s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                  geneseqn1980s:*
                                                                                                                                                                                                                                                                                                                                                                                                               geneseqn2000s:*
                                                   102634
110000
349980
                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.6 (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100%
                                                                     ACF67367_27
ACF65386_0
ACF65386_1
ACF69784
AAH81383
                             ADA32523
ABQ90157
AAZ53292
AAZ53291
                                                                                                                                                     AAT42063_09
ACA42822
                                                                                                                                                                                   AAZ40648
ACA53067
AAZ24801
ACA53066
                                                                                                                                                                                                                                               IJ
          AAA81464
AAA81490
                                                                                                                                 ACA44455
                                                                                                                                            ACA34292
                                                                                                                                                                                                                           AAZ40646
                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (without alignments)
16239.170 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6747726
                                                                                                                       Aca44455 Prokaryot
Aaz37118 Nucleotid
                                                                                                                                                                         Aaz24801 Vibrio ch
Aca53066 Prokaryot
Aaz40647 Nucleotid
                                                                                                                                                               Continuation
                                                                                                                                                                                                       Aca53067 Prokaryot
                                                                                                                                                                                                                 Aaz40646 Nucleotid
Aaz40648 Nucleotid
                                                                                                                                                                                                                                              Description
                                                                       Aah81383
                                                                                        Acf65386 Photorhab
Continuation (2 of
                                                                                                              Continuation
                                                                                                                                             Aca34292
                                                                                                                                                      Aca42822
                                       M. capsul
Neisseria
                                                                                                                                          Prokaryot
                                                           Escherich
DNA encod
                              Neisseria
                                                                                Photorhab
          mening
on (11 o
                                                                                                             (28
                                                                                                                                                               (10 o
                                                                                                             o
```

Ω	ი	Ω	ი	ი	ი	ი	Ω	ი	ი	ი		ი	Ω	ი							
45	44	43	42	41	40	39	38	37	36	ა 5	34	ω W	32	31	30	29	28	27	26	25	24
75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	77.8	79	79	83.6	84	84	84	137	142.2	145.4	148.6	149.2	149.2	152.2
2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.9	2.9	2.9	2.9	4.7	4.9	5.0	5.1	5.1	5.1	5.2
4137	3952	2520	2380	2288	2280	2208	2208	3950	2075	2075	4473	2440	2440	2440	420	96109	420	1515	852	849	110000
w	œ	4	4		9	4.	4.	7	φ	9	ຫ	9	9	7	6	4	σ	4.	w	7	σ
AAA75484	ACH03831	AAK94823	AAK51764	AAV59498	ADB80585	AAK52748	ABA09555	ABT42286	ADB53745	ADB58991	AAS88385	ADB52673	ADB58174	ABT41887	ABN26172	AAF28548	ABN26154	AAF61079	AA253290	ABZ40310	ABA92787_4
Aaa75484 DNA	Ach03831 Hur	Aak94823 Hur	Aak51764 Hur	Aav59498 Hur	Adb80585 Ova	Aak52748 Hur	Aba09555 Hur	Abt42286 To:	Adb53745 Pr:	Adb58991 To:	Aas88385 DN/	Adb52673 Pr	Adb58174 To:	Abt41887 To:	Abn26172 Hur	Aaf28548 Ger	Abn26154 Hur	Aaf61079 P.	Aaz53290 Ne:	Abz40310 N.	Continuation (5
A encoc	Human cDN	Human ful	Human pol	Human sod	Ovarian c	Human pol	Human Na-	Toxicity	Primary r	Toxicity-	DNA encod	Primary r	Toxicity-	Toxicity	Human ORF	Genomic f	Human ORF	P. putida	Neisseria	N. gonori	n (5 of

ALIGNMENTS

```
cholerae thyA-negative strains are used: for overproduction of recombinant proteins; and in vaccines to prevent or treat cholera (or other diseases if engineered to express the appropriate proteins). The thyA gene is also useful for insertion of foreign genes, in a selective and site-specific manner, and the proteins expressed by the thyA gene or by its 5'.flanking region, are useful in research and as targets for the choleraction of the control of the
                                                                                                                                                                                                                          The invention provides a method for producing a Vibrio cholerae thyAnegative strain which is DeltathyA strain lacking thyA gene functions. The method comprises site-directed mutagenesis of the V. cholerae chromosome to delete and/or insert nucleotides at the thyA logus; The V.
                                                                                                                                                                                                                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                          New Vibrio cholerae strain defective in the thyA vaccines and for recombinant protein production.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Carlin N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cholera; antimicrobial therapy; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vibrio cholerae; thyA-negative strain; DeltathyA; thyA gene; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAZ40646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAZ40646 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P-PSDB; AAY59126.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-DEC-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleotide sequence of V. cholerae thyA gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9961634-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SBLV-) SBL VACCIN AB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000-062719/05.
                                                                                                                                                                                                                                                                                                                                                                                             9; Fig 1; 42pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lebens MR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98SE-00001852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99WO-EP003509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA;
When used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ВP
   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for
          <
```

\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	SXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CHEST 2009) CORRESPONDED CONTRACTOR CONTRACT	th & sesson
CTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTGAACATTCCTTACCGTAAAAGGTTGAACATTCCTTACCGTAAAAGGTTGAACATTCAACCAAGATGCTAACCAATTAAACCAAGCATGCAACATTCAACCAAGCTTGAACCAAGCTTGAACCTTAACGTTAAAGGTTGAACAAGATTGAACAAGATTGAACAAGATTGAACAAGATTGAACAAGATTGAACAAGATTGAACAAGATTGAACAAGATTGATGATTAAACAAGATTTGAACAAGAACAACAACCAAATTCTTAACTTCAAAAAAGATTGATGATTTCAACACAAAAAAAA	

밁 δ 닭

밁 ঠ 밁 Ś

```
RESULT 2
AAZ40648
ID AAZ4
XX
AC AAZ4
AC AAZ4
AC AAZ4
AC AAZ4
XX
DT 08-M
XX
XX
XX
Nucl
           Nucleotide sequence
                                   08-MAR-2000 (first entry)
                                                                                   AAZ40648
                                                                                                                                                                                                                                                                                                                  2701
                                                                                                                                                                                            2821
                                                                                                                                                                                                                   2821
                                                                                                                                                                                                                                            2761
                                                                                                                                                                                                                                                                   2761
                                                                                                                                                                                                                                                                                           2701
                                                                                                                                                                                                                                                                                                                                           2641
                                                                                                                                                                                                                                                                                                                                                                                        2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1981
                                                                                                                                                                                                                                                         AGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCCATTTAAAACCGCTGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGATTGAACTAATACCGTAAC
                                                                                                                                                         TTTCGTGGTCAGCGAAATCGGCGCTGCAG
                                                                                                                                                                                                          CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCCAACGTAGGCC
                                                                                                                                                                                                                                                                                                         CGCGGTTTCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                         AAGGCTGACGAGAGTATTGGTCACAGTACCAATATTGGCACCCATCACCATAGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCGTGGATGGTGGCACTGGCGAAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAA 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATGGTCGCAATACCCAATACGATAAGTGCGACACCCCGAAAGTATTACCCAATACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGTGCGCGGCCAACCATCAAACTCTTCATCAGTTTTGCCCATCACCGTAATGGCGACGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGTGCCAATGTTCGCACCTAAGGTAAATGGGTAGATTTCACGCACTTTCAGCACGCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGTGCCAATGTTCGCACCTAAGGTAAATGGGTAGATTTCACGCACTTTCAGCACGCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGAGCAAACACGGCAAACTCACCAGAGACAGCGGTTGCGGCGAGCAGAGCAGTAATACA
                                                                                   standard;
                                                                                                                                                                                            CATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCAACGTAGGCC
                                                                                                                                                                                                                                            AGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGAC
                                                                                                                                                                                                                                                                                           AAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAGGCCAGTGTGAGACTTTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATGGTCGCAATACCCAATACGATAAGTGCGACACCACCGAAAGTATTACCCAATACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGATTGAACTAATACCGTAAC
                                                                                                                                             TTTCGTGGTCAGCGAAATCGGCGCTGCAG
                                                                                   DNA; 1222 BP
          of V. cholerae
           thyA
                                                                                                                                                                   2909
                                                                                                                                             2909
           gene
            ω
           flanking
                                                                                                                                                                                            2880
                                                                                                                                                                                                                                                                                          2760
                                                                                                                                                                                                                                                                                                                   2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2100
                                                                                                                                                                                                                   2880
                                                                                                                                                                                                                                           2820
                                                                                                                                                                                                                                                                                                                                           2700
                                                                                                                                                                                                                                                                                                                                                                 2700
                                                                                                                                                                                                                                                                                                                                                                                        2640
                                                                                                                                                                                                                                                                                                                                                                                                                2640
                                                                                                                                                                                                                                                                                                                                                                                                                                         2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2040
                                                        δ
                                                                                                    Ş
                                                                                                                                맑
                                                                                                                                                     á
                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                              XEXEEXSXOOOOOOOOOOOOO
                                                                                                                                                                               밁
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 吊
```

```
Vibrio cholerae; thyA-negative strain; DeltathyA; thyA gene; cholera; antimicrobial therapy; ss.
Vibrio cholerae
```

99WO-EP003509

98SE-00001852

(SBLV-) SBL VACCIN

Carlin N,

New Vibrio cholerae strain defective in the thyA gene, vaccines and for recombinant protein production. for use ín

Claim 11; Fig 3; 42pp; English

The invention provides a method for producing a Vibrio cholerae thyAnnegative strain which is DeltathyA strain lacking thyA gene functions. The method comprises site-directed mutagenesis of the V. cholerae chromosome to delete and/or insert nucleotides at the thyA locus; The V. cholerae thyA-negative strains are used: for overproduction of recombinant proteins; and in vaccines to prevent or treat cholera (or other diseases if engineered to express the appropriate proteins). The thyA gene is also useful for insertion of foreign genes, in a selective and site-specific manner, and the proteins expressed by the thyA gene or by its 5'-flanking region, are useful in research and as targets for antimicrobial therapy. When used for recombinant protein production, V. cholerae provides high yields with secretion of products into the culture medium for ease of subsequent recovery. The thyA-negative strain can be maintained by thymine complementation, eliminating the need for antibiotic selection. The present sequence represents the nucleotide sequence of the V. cholerae thyA gene 3' flanking region

Sequence 1222 BP; 373 A; 293 C; 289 G; 267 T; 0 U; 0 Other;

100.0%;

42.0%; Score 1222; 100.0%; Pred. No. 0;

DB ω •-

Length 1222;

Query Match Best Local Similarity Matches 1222; Conserva 2048 1988 1928 1868 1808 241 181 121 61 CGGGAGCTTTTTTATACAGATGATGCTTTAACGCTTAAGCGGTTAGGGCAAGAATGCTG ATGTTCGCACCTAAGGTAAATGGGTAGATTTCACGCACTTTCAGCACGCCAGAGCCCACG CCGGGGATGACGACAAACACACCCAATAAGTAACTCACCACCACCATTTTGCTCTTACAA AACACGGCAAACTCACCAGAGACAGACGGTTGCCGGCGAGCAGAGCAGTAATACAAGTGCCA TAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAAGTGCACCAGCGCAATTTGCAGAGCA TAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAAGTGCACCAGCGCAATTTGCAGAGCA GCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGGCAGTTCGCGTAAGAAAGGAATACCG AACACGGCAAACTCACCAGAGACAGCGGTTGCGGCGAGCAGAGCAGTAATACAAGTGCCA GCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGGCAGTTCGCGTAAGAAAGGAATACCG Conservative 0, Mismatches 0, Indels 0 Gaps 1867 1987 1807 360 1747 300 240 1927 120 60 0,

밁 ð 문 S 밁 S 밁 S 片 Ś 밁 S 밁 Ś 밁 S 밁 Ś 밁 Ś 밁 Ś

유

δ

Ş 밁 Ś 밁 á

밁

```
ACAS3067/c
ID ACAS30
XX ACAS30
XX ACAS30
XX ACAS30
XX Prokar
XX Antise
XX Antise
XX Antise
XX Antise
XX Yibrio
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                               ACA53067 standard;
   Vibrio cholerae
                                                      Antisense; ds; prokaryotic
                                                                                                                            19-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2468
                                  design; gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                           GTCAGCGAAATCGGCGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                           ACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAAGTTTGCCCAACGTAGGCCTTTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGACCATCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGAGAGTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGAGAGTATTGGTCACAGTAGTACCAATATTTGGCACCCATCACCATAGGAATCGCGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTTTACAGCGCATATGGCCAAGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAGCCAGTGTGAGACTTTCTCTAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCATATCGCCAGTCGCAAGCAGAGCGAAACGAGCCAGTGTGAGACTTTCTCTAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACCTTTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGGTTTGATAAAATCAAAACCTTTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCAATACCCAATACGATAAGTGCGACACCACCGAAAGTATTACCCAATACCGAAAGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAATACCCAATACGATAAGTGCGACACCACCGAAAGTATTACCCAATACCGAAAGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCCAACCATCAAACTCTTCATCAGTTTGCCCATCACCGTAATGGCGACGAAAATGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCCAACCATCAAACTCTTCATCAGTTTGCCCCATCACCGTAATGGCGACGAAAATGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTCACGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAATCGCATTTTGTAGAATTTCACGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGATTGAACTAATACCGTAACCACTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGATTGAACTAATACCGTAACCACTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGTTCGCACCTAAGGTAAATGGGTAGATTTCACGCACTTTCAGCACGCCAGAGCCCACG
                                                                                                                                                                                                                                                                                       GTCAGCGAAATCGGCGCTGCAG 1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                TCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGACCATCGCG
                                                                                         essential
                                                                                                                            (first
                                                                                                                                                                                                 DNA; 1149
                                                                                                                            entry)
                                                                                         gene
                                                      essential gene; cell proliferation;
                                                                                         #34724.
                                                                                                                                                                                                 ВP
                                                                                                                                                                                                                                                                                                                      2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                           2887
                                                                                                                                                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              960
```

Ş 뫄 Ś В Ş 밁 Ş 멍 Ś 밁 Ş B

Ş 밁 Ş

밁 δ 문 S

> CACCACCACTTTTGCTCTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGG TTAAGCGGTTAGGGCAAGAATGCTGCCGGGGATGACGACAAACACACCCAATAAGTAACT

CACCACCACTTTTGCTCTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGG

1030 1902 1090 1842 0;

Query Match
Best Local Similarity
Matches 1118; Conserv

Conservative

0;

9

Indels

0

Gaps

Score 1112.6; Pred. No. 0; 0; Mismatches

1149

BP;

247 A; 272 38.2%;

Ç

278 G;

352

T; 0 U; BB

0 Other; Length 1149;

δ 밁 S

```
cu cure nucleic acid imiliaris proliferation of a cell. Also included ate:

(1) a vector comprising a promoter operably linked to the nucleic acid

ce encoding a polypeptide whose expression is inhibited by the antisense

ce nucleic acid; (2) a host cell containing the vector; (3) an isolated

ce polypeptide or its fragment whose expression is inhibited by the

ce antisense nucleic acid; (4) an antibody capable of specifically binding

the polypeptide; (5) producing the polypeptide; (6) inhibited by the

ce proliferation or the activity of a gene in an operon required for

proliferation for proliferation, or that inhibits cellular proliferation;

ce product or that has an activity against a biological pathway

ce required for proliferation, or that inhibits cellular proliferation; (8)

ce identifying a gene required for cellular proliferation or the biological

pathway in which he test compound that inhibits gene product lies

or a gene on which the test compound that inhibits proliferation of an

ce compound's activity; (11) a culture comprising strains in which the gene

ce product is overexpressed or underexpressed; (12) determining the extent

to which each of the strains is present in a culture or collection of

strains; or (13) identifying the target of a compound that inhibits the

ce proliferation of an organism. The antisense nucleic acids are useful for

ce identifying proteins or screening for homologous nucleic acids required

for cellular proliferation to isolate candidate molecules for rational

ce required for proliferation in cells other than S. aureus, S. typhimurium,

ce prokaryotic essential genes. Note: The sequence is one of the target

provence and directly from WIPO at

ce lectronic format directly from WIPO.
06-SEP-2001;
25-OCT-2001;
08-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wang
Wall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the 6213 antisense sequences given in the specification where expression of the nucleic acid inhibits proliferation of a cell. Also included are:
(1) a vector comprising a promoter operably linked to the nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 14; SEQ ID NO 40937; 1766pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2003-029926/02.
P-PSDB; ABU49197.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           06-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ELIT-)
                                   [tp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             antisense nucleic acids, useful for identifying proteins or screening homologous nucleic acids required for cellular proliferation to late candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 invention relates to an isolated nucleic acid comprising any one of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ១ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ELITRA PHARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zamudio
Trawick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2001US-0342923P.
2002US-00072851.
2002US-0362699P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2002WO-US009107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001US-00948993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2001US-00815242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ą,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Malone
Carr (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         රි <sup>()</sup>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haselbeck R, Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ohlsen
Forsyth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ŗ.Ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zyskind JW;
Xu HH;
```

AAZ24801;

.

	9 GTTTGCCCAACGTAGGCCTTTCGTGGTCAGCGAAATCGGCGCTGC	6	문
	3 GTTTGCCCAACGTAGGCCTTTCGTGGTCAGCGAAATCGGCC	286	ş
70	9 TTTAAAACCGCTGCCGACCATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAG	12	Дb
2862	3 TTTAAAACCGCTGCCGACCATCGCGACTGCAAGAAGTAGTAGTAAATACAGCATGAAA	280	ठ
130	9 TCCTGCAATTGGGTGGGAAGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCA	18	Дb
2802	3 TCCTGCAATTGGGTGGGAAGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTG	274	Ş
190	9 AATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCAT	24	ДЬ
2742	3 AATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAA	268	S
250	9-	30	ДD
2682	3 ACCCATCACCATAGGAATCGCGGTTTCAACCGGTAACCCACCGGCAACGAGACCAACAAT	262	Ş
310	9	36	В
2622	3 TTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGC	256	ઇ
370	9 CGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTT	42	밁
2562	3 CGCGAGAAGATTGAAAAAATCGTGGGATGGTGGCACTGGCGAAAGCACGGCGAAACT	250	Ş
430	9 CCAGTGTGAGACTTTCTCTAAAATTCCAAACATCATTTCTAGAGGTAGGAAGA	48	밁
2502	3 CCAGTGTGAGACTTTCTCTAAAATGCCCAAACATCATTTCTAGAGGTAGGAAGATCAGCA	244	Ş
490	9 TITGATAAAGTCAAAACCTTTCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAG	54	밁
2442	3 TITGATAAAATCAAAACCTTTCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAA	238	ঠ
550	9 AGTATTACCCAATACCGAAAGCTGGGTTTCAAGACCTGTTATGACAGGTTTGGTAATCGG	60	밁
2382	3 AGTATTACCCAATACCGAAAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTTGGTAATC	232	Ş
610	9 CACCGTAATGGCGACGAAAATGGTCGCGATACCCAATACGATAAGTGCGACACCCACC	66	D
2322	ü	226	ş
670	9 CGCATTITGTAGAATTTCACGTGCACGGCCAACCATCAAACTCTTCATCAGTTTGCCCCAT	72	DЬ
2262	ე-	220	Ş
730	9 TTGAACTAATACCGTAACCACTGTACCTGAAGCAATACCGTGTAGTGGACCTCGGCCAAT	78	밁
2202	3 TTGAACTAATACCGTAACCACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGG	214	S
790	9 CACTTTCAGCACGCCAGAGCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGAGGATGA	84	g
2142	3 CACTITICAGCACGCCAGAGCCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGATC	208	Ş
850	9 G₽ -	90	밁
2082	w	202	र्
910	9 GTGCACCAGCGCAATTTGCAGAGCAAACACGGCAAACTCACCAGAGACAGGGGTTGCGG	96	ర్జ
2022	3 GIGCACCAGCGCAATTIGCAGAGCAAACACGGCAAACTCACCAGAGACAGCGGTTC	196	δ.
970		102	밁
1962	ω	190	Ś

RESULT 4
AAZ24801
ID AAZ2
XX

AAZ24801 standard;

```
8
                                                            문
                                                                                         8
                                                                                                                              문
                                                                                                                                                       δ
                                                                                                                                                                                           맑
                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 846; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This sequence represents the wild type coding region of the thyA gene from Vibrio cholerae, which encodes the enzyme thymidilate synthase. The invention relates to the production, from a non-toxigenic strain of V. cholerae, of attenuated strains of V. cholerae suitable for immunization against cholera. The attenuation comprises inactivating the gene for hemagglutinin protease (HP), either by deletion, insertion or some other defined and irreversible genetic manipulation. Additional biosafety of the attenuated strains is generated by mutating the thyA gene, resulting in auxotrophic mutants mable to replicate in the environment. The new
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 852 BP; 217 A; 177 C; 216 G; 242 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-430398/36.
P-PSDB; AAY26895.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wild type; thyA; enzyme; thymidilate synthase; non-toxigenic; mutation; attenuation; immunization; cholera; hemagglutinin protease; biosafety; auxotrophism; replication; vaccine; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 18; Page 30; 30pp; Spanish.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Producing strains of Vibrio cholerae with inactivated gene hemagglutinin protease, useful in vaccines against cholera.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Campos Gomez J,
Ledon Perez TY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Vibrio cholerae thyA coding region sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-DEC-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9935271-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (NAIN-) CENT NACIONAL INVESTIGACIONES CIENTIFICA
                              1139
                                                                                              1079
                                                                                                                                                           1019
301
                                                                                                                              181
                                                              241
                                                                                                                                                                                           121
                                                                                                                                                                                                                           959
                                                                                                                                                                                                                                                                                           899
                                                                                                                                                                                                                                                                                                                                           839 GTGAAACAGTATTTAGATCTTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTGAAAAT
                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                             GAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTTGACCTACGATGTGGGC
GAGGATGACATGGGACGCGTGTATGGAGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGT
                     GAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGT
                                                                                                                                                                                                                                                           GAACGAACGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGC
                                                                                                                                                                                                                                                                                                                         GTGAGACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAAT
                                                                                    ACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGT
                                                                                                                                             TTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAA
                                                                                                                                                                                                                           AACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAG
                                                              ACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGT
                                                                                                                                                                                            AACAATCAGTTTCCTCTAGTCACTACACGCAAGAGTTTTTGGAAAGCCGCCGTGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97CU-00000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98WO-CU000008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fando Calzada RA, Rodriguez Gonzalez
Valle Diaz E, Silva Cabrera AJ, Beni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       to produce anticholera vaccines
                                                                                                                                                                                                                                                                                                                                                                                                      29.0%;
                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                       Score 842.4; DB 2;
Pred. No. 1.7e-257;
0; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                      Length 852;
                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alez BL;
Benitez Robles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for
                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JA;
                                1198
                                                                                                                                                              1078
 360
                                                              300
                                                                                              1138
                                                                                                                                                                                                                           1018
                                                                                                                                                                                                                                                                                                                                                           898
                                                                                                                              240
                                                                                                                                                                                                                                                                                           958
                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                              180
                                                                                                                                                                                                                                                           120
```

```
ACA53066
ID ACA53066
ID ACA53066
ACA53066
ACA5066
ACA5066
ACA5066
ACA5066
ACA5066
ACA5066
ACA50666
ACA506666
ACA50666
ACA506666
ACA506666
ACA506666
ACA506666
ACA506666
ACA506666
ACA506666
ACA5066666
ACA5066666
ACA5066666
ACA50666666
ACA5066666
ACA5066666
ACA50666666
ACA506666666
ACA506666666
ACA5066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                             21-MAR-2001; 2001US-00815242.

06-SEP-2001; 2001US-00948993.

25-OCT-2001; 2001US-0342923P.

08-FEB-2002; 2002US-00072851.

06-MAR-2002; 2002US-0362699P.
                                               WPI; 2003-029926/02
                                                                                                                                                                                                                                                                                                                                                             21-MAR-2002; 2002WO-US009107.
                                                                                                                                                                                                                                                                                                                                                                                                            03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200277183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Antisense; ds;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Prokaryotic essential gene #34723.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACA53066 standard; DNA; 852 BP
                        P-PSDB;
                                                                                                                                                                   (ELIT-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1679
                                                                                              ם, ר
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     design;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                           ABU49196
                                                                                                                                                                   ELITRA PHARM
                                                                                              Zamudio
Trawick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTTCAGTCTAA 1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTACAGCCATCATTTTCATTGCTGGGTGATACCTTGTATCTCAACAGTACTCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTGAGCCGTGGCGTTGATGACCGA 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                prokaryotic
                                                                                           ąς,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                              Malone
Carr (
                                                                                                                                                                   INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               852
                                                                                              5<u>0</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              essential
                                                                                              Yamamoto R,
                                                                                                                  Haselbeck R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cell
                                                                                              Ohlsen
Forsyth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              proliferation;
                                                                                              ₽,E
                                                                                              Zyskind
Xu HH;
                                                                                                                       Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
```

New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.

Claim 14; SEQ ID NO 40936; 1766pp; English.

contribution retailes to an indicate computating any one of the nucleic acid inhibits proliferation of a cell. Also included are:

((1) a vector comprising a promoter operably linked to the nucleic acid encoding a polypeptide whose expression is inhibited by the antisense complete acid; (4) a host cell containing the vector; (3) an isolated containing the polypeptide by the containing the vector; (3) an isolated containing the polypeptide; (5) producing the polypeptide; (6) inhibiting cellular proliferation; (7) identifying a compound that influences the activity of an entity of a gene in an operon required for containing a gene required for cellular proliferation or the biological pathway in which a proliferation, or that inhibits cellular proliferation of an compound solve product is overexpressed or underexpressed; (12) determining the extent compound's activity; (11) a culture comprising strains in which the gene conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is conduct are useful for conduct is overexpressed or underexpressed; (12) determining the extent conduct is conduct are useful for conduct is overexpressed or underexpressed; (12) determining the extent conduct is overexpressed or underexpressed; (12) determining the extent conduct is conducted and underected and conducted are useful ftp.wipo.int/pub/published_pct_sequences relates to an isolated nucleic acid comprising any one ō.

Sequence 852 BP; 217 A; 177 C; 216 G; 242 T; 0 U; 0 Other;

Ş 밁 Ś 밁 Ś 밁 Ś 밁 Ś 밁 Ş 밁 Ś 밁 á Query Match Best Local Sim Matches 846; 1019 1199 1139 1079 361 301 241 181 839 121 959 999 61 \vdash Similarity AACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAG GAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACTTACGATGTGGGC GTGAGACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTGAAAAAT GTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAAT GGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGC GGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGA TTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAA 1078 AACAATCAGTTTCCTCTAGTCACTACACGCAAGAGTTTTTGGAAAGCCGCCGTGGCCGAG GAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTTGACCTACGATGTGGGC GGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGA GAGGATGACATGGGACGCGTGTATGGAGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGT GAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGT ACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGT ACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGT 1138 Conservative 29.0%; Score 842.4; DB 7; Pred. No. 1.7e-257; 0; Mismatches 6; Indels Length ٥, Gaps 1318 420 1258 360 1198 240 1018 120 958 898 60 300 180

Gaps

60

120

```
RRSULT 6
AAZ40647
ID AAZ4
XX AAZ4
XX Vibr
XX Vibr
XX Vibr
XX Vibr
XX Vibr
XX Chol
XX The
CC chcol
CC chol
CC c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
The invention provides a method for producing a Vibrio cholerae thyAnegative strain which is DeltathyA strain lacking thyA gene functions. The method comprises site-directed mutagenesis of the V. cholerae chromosome to delete and/or insert nucleotides at the thyA locus; The cholerae thyA-negative strains are used: for overproduction of recombinant proteins; and in vaccines to prevent or treat cholera (or
                                                                                                                                                  Claim 10;
                                                                                                                                                                                       New Vibrio cholerae strain defective in the thyA vaccines and for recombinant protein production.
                                                                                                                                                                                                                                                                                                                      Carlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-DEC-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9961634-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vibrio cholerae; thyA-negative strain; DeltathyA; thyA gene; vaccine; cholera; antimicrobial therapy; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAZ40647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAZ40647 standard;
                                                                                                                                                                                                                                                                                                                                                                (SBLV-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1319
                                                                                                                                                                                                                                                         2000-062719/05.
DB; AAY59127.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                      z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cholerae
                                                                                                                                                                                                                                                                                                                                                              SBL VACCIN AB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGGATCCTATTCAATACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACATTTACCAAGATCAACTCGAATTGATGCGCGCATGTGCAGCTAAAACGTGAGCCATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTTCAGTCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTTCAGTCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCACTTTGGATTTTTGACGTCACCGGATATCAGTTCCACCGATCCTATTCAATACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGATGGCACAGATCACAGGGAAAAAGCCCGGGCTTTGGCGTATCACAAGATCGTCAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGTACAGCCATCATTTTCATTGCTGGGTGATACCTTGTATCTCAACAGTACTCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCG
                                                                                                                                                Fig
                                                                                                                                                                                                                                                                                                                      Lebens MR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                2;
                                                                                                                                                                                                                                                                                                                                                                                                       98SE-00001852
                                                                                                                                                                                                                                                                                                                                                                                                                                                 99WO-EP003509
                                                                                                                                                42pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of V. cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                thyA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5' flanking
                                                                                                                                                                                                           gene,
                                                                                                                                                                                                               for
                                                                                   functions.
                                                                                                                                                                                                                  ä
                                           The
                                           <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                    S
                                                                                                      밁
                                                                                                                                            Ś
                                                                                                                                                                            밁
                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                        뫄
                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    និស្សស្សស្សស្សស្ន្<del>នី</del> ଝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     other diseases if engineered to express the appropriate proteins). The thyA gene is also useful for insertion of foreign genes, in a selective and site-specific manner, and the proteins expressed by the thyA gene or by its 5'.flanking region, are useful in research and as trargets for antimicrobial therapy. When used for recombinant protein production, v. cholerae provides high yields with secretion of products into the culture medium for ease of subsequent recovery. The thyA-negative strain can be maintained by thymine complementation, eliminating the need for antibiotic selection. The present sequence represents the nucleotide sequence of the V. cholerae thyA gene 5' flanking region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 838 BP; 145 A; 176 C;
                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                        781
                                                             781
                                                                                                         721
                                                                                                                                                721
                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 838;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                  TTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACTGGCGGCATGTCCTCCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTTCCCAATATTTGACCCCCGTATTGTT
                                                                                                                          CATTTCAATGGGGCAAATCCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGT
                                                                                                                                                                                                               CCGCTTCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTT
                                                                                                                                                                                                                                                                                                TGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATT
                                                                                                                                                                                                                                                                                                                                                                                    ACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCCGCCATCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTCTCTGACTTGTTATTCGCCCGGCTTTTTTAGGTGATCGGTGGTGGCCGAGTTGGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTTGGTGGGTTTTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTT
                                                                                                                                                                                          CCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTT
                                                                                                                                                                                                                                                                             TGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATT
                                                                                                                                                                                                                                                                                                                                                              ACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                             AACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.8%; So ilarity 100.0%; I Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 838;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  232 G; 285 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.4e-256;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

838

780

720 720 600

540 540 480 480 360 360

420

420

240

240 180 180 120

300 300

	Q D Q D	2	. Q Db Q 5	Mat	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	RESULT AAT420 Contii WP Sec WP
476 CGAGTAACGGATGTGCCTTGGGCTTTTGTATTCCTAATGGTGGCCCACTGCCGCGC 532	356 IGITIGGAAAGIGGAAIGICGITICACGIGGCITAAIIGGIGIAAIIGIIGCIAIIGAII 58445 356 IGGTAIGCGCGIAAAACCAACGCACCITCTITIGGIGGACGATTITIGTITGCCCCITTA 415	176 GAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGTAGTGATCGGTGGCCGAGTT 235 8266 GATCAAGTTGATAGCTTACTTTTTCAACGGTTTTATTGGGGGTTTATTGGGGAACGTGTT 5832 236 GGTTATGTGATAGTCTTACAATTTTGATCTGTTCTTACTGACCCTCTTTATTTA	2 TCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGG	1500001 1610000 1600001 1710000 1700001 1810000 1700001 1810000 1800001 1830121 25.6%; Score 744.2; DB 2; Length 110000; rity 66.7%; Pred. No. 7.9e-225; nservative 0; Mismatches 538; Indels 27; Gaps 4; GTTTGTTATGCCTCAGGGTTATCTGCCAGTTTTCCCAATATTGACCCCGTATTGTTT 61	AAT42063_04 400001 510000 AAT42063_05 500001 610000 AAT42063_05 600001 710000 AAT42063_06 600001 710000 AAT42063_07 700001 810000 AAT42063_08 800001 910000 AAT42063_08 800001 1010000 AAT42063_10 1000001 1110000 AAT42063_11 1100001 1210000 AAT42063_12 1200001 1310000 AAT42063_13 1300001 1310000 AAT42063_14 1400001 1510000	19) of nto 19
D Q D Q D Q	0	D Q D D D	S B S B S	8 8 8 8 8	B	, yo
59628 CCTTTCCCATTACCAAATTAGAAATTAGATCCAGATATAAAAACGCTTGAAGATTTGGAA 59687 1613 ACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATAAAAACGCTTGAAGATCTATTCAA 1672 1614	1433 CTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTC 1492	328 313 388 373 373	1133 AAAGGTGAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTAGGCCT 1192	953 GTGGCACAATAGCTTTCCTCTAGTGACTACAGCAAGAGTTTTTTGGAAAGCTGCCGTA 1012	**IGATIGATE TIGGET TIME ANG CONTROL FOR TAX CAN ANALYSIS AND ATTATIGATE TIME ANG CONTROL TO SEE THE SECOND TO SEE THE SECOND TO SEE THE SECOND TO SECOND TO SECOND THE SECOND TO SECOND TO SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND THE SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND THE SECOND TERM AND SECOND TO SECOND TERM AND SECOND TERM AND SECOND TO SECOND TERM AND	653 GGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTT 712

```
RESULT 8
ACA42822
ID ACA4
The invention relates to an isolated nucleic acid comprising any one of CC the 6213 antisense sequences given in the specification where expression CC of the nucleic acid inhibits proliferation of a cell. Also included are: CC (1) a vector comprising a promoter operably linked to the nucleic acid (CC nucleic acid; (2) a host cell containing the vector; (3) an isolated CC nucleic acid; (2) a host cell containing the vector; (3) an isolated CC polypeptide or its fragment whose expression is inhibited by the antisense cc antisense nucleic acid; (4) an antibody capable of specifically binding CC the polypeptide; (5) producing the polypeptide; (6) inhibiting cellular CC proliferation or the activity of a gene in an operon required for the gene product or that has an activity against a biological pathway of the gene product or that has an activity against a biological pathway in which a proliferation, or that inhibits cellular proliferation; (8) identifying a gene required for cellular proliferation or the biological pathway in which hat the test compound that inhibits gene product lies or a gene on which the test compound that inhibits proliferation of an CC compound's activity; (11) a culture comprising strains in which the gene CC product is overexpressed or underexpressed; (12) determining the extent compound that inhibits proliferation of strains; or (13) identifying the target of a compound that inhibits the gene CC proliferation of an organism. The antisense nucleic acids are useful for cellular proliferation to isolate candidate molecules for rational CC drug discovery programs, or for screening homologous nucleic acids required corrective proliferation in cells other than S. aureus, S. typhimurium, CR proliferation in cells other than S. aureus, S. typhimurium, CR proliferation in cells other than S. aureus, S. typhimurium, CR proliferation in cells other than S. aureus, S. typhimurium, CR proliferation in cells other than S. aureus of the target the compound that inhibits the central did
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-MAR-2001; 2001US-00815242.

06-SEP-2001; 2001US-0094893.

25-OCT-2001; 2001US-0342923P.

08-FEB-2002; 2002US-00072851.

06-MAR-2002; 2002US-0362699P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACA42822 standard; DNA; 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New antisense nucleic acids, useful for identifying proteins or screfor homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antisense; de
drug design;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACA42822;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pasteurella multocida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Prokaryotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JUN-2003
                                                           prokaryotic essential genes. Note:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ELIT-)
                                       form part of the printed specification,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ם
ה
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABU38952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELITRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zamudio
Trawick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 30692; 1766pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            de;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 essential gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PHARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            prokaryotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Malone
Carr G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INC.
                  from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
ସ୍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #24479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              essential
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Haselbeck R, Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          English.
                                                         The sequence
                                                 other than S. aureus, S. typhimurium, present sequence is one of the target The sequence data for this patent did tastion but the sequence data for this patent did tastion but the sequence data for this patent did
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene; cell proliferation;
                                         but was obtained
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ohlsen
Forsyth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽.Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zyskind JW;
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or screening
```

RESULT 9
ACA34292
ID ACA3

ACA34292 standard; DNA; 852

₽₽

ACA34292;

```
δ
                                                          밁
                                                                                      δ
                                                                                                            ᄝ
                                                                                                                                               S
                                                                                                                                                                                    문
                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                멼
                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 635;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 852 BP; 247
                           1680
                                                                                                                                                                                                                   1500
                                                                                                                                                                                                                                                                               1440
                                                                                                                                                                                                                                                                                                                                             1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1080
                                                                                         1620
                                                                                                                                                       1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1140 AGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTG
                                                            782
                                                                                                                                                                                                                                                  602
                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                                            482
                                                                                                                                                                                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840 TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900 AACGAACGGGCAAGCGTTGTTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                      ACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCC
                                                                                                                                                                                                                                                                                                                                 CATGTGATGTGCCCTTGGGGTTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAGT
                             TTTCAGTCTAA 1690
                                                                                           TCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT
                                                                                                                         CGTTGCCACAATTACACATTAACCCCGAGATTAAAACTCTCGAAGATTTAGAAACTTGGG
                                                                                                                                                       CAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGG
                                                                                                                                                                                      ACATTTATGAAGATCAACTTGATCTCATGAAAAATGTGCAATTAAAACGTGACCCCTTCC
                                                                                                                                                                                                                                                TGATGGCACAAATTACGGGCAAAAAAGCGGGTAAGGCGTACCACAAAATCATCAATGCAC
                                                                                                                                                                                                                                                                       TGATGGCACAGATCACAGGGAAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCGC
                                                                                                                                                                                                                                                                                                               CTTGTGATGTGCCGCTTGGCTTGAATTTCAACCAAATTCAAGTGTTCACCTTTCTTGCCT
                                                                                                                                                                                                                                                                                                                                                                            TGCACACCCACACCTTCTCATTACTCGGTGATACCCTCTATCTCACCAGTTATCAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                       TGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGAAATCATGACCTTCTTCAACCCCGGTGAATTTGAACTGGGTTGCCTACGTCCTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAACCGTCGATCAATTGCGCAAAATCGTCAATAATCTGCGCAACGGCATTGATGACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGATGATATGGGACGTGTTTATGGCGTACAAGGGCGTGCATGGCGCAAACCGAACGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGGGATGCCAATGCTAATGAAAACAGTGCATGGCTCAATAATCCGCACCGCAAAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTTAGGTTATATCCGTGGCTATGACAATGCGGCAGATTTCCGCCAAACTCGGCACCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGATTTTCGCCAATTAGGTACCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATAACCAATTTCCGTTGATCACCACACGCAAAAGCTATTGGAAAGCGGCAATTGCAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACGGACTGGCAAACGTTGTCTGACCGTGATTGATGCGGATCTCACCTACGATGTTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAAACACTATTTAGAACTTTGCCAACGTATCGTTGATGAAGGTGTTTGGGTTGAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 505.4;
Pred. No. 6.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 G; 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.8e-150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T; 0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                       1619
                                                                                                                                                                                                                    1559
                                                                                                                                                                                                                                                                                 1499
                                                                                                                                                                                                                                                                                                                                             1439
                                                                                                                                                                                                                                                                                                                                                                                                          1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1019
                                                            841
                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    899
                                                                                                                         781
                                                                                                                                                                                      721
                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
CC encoding a polypeptide whose expression is inhibited by the antisense CC nucleic acid; (2) a host cell containing the vector; (3) an isolated CC polypeptide or its fragment whose expression is inhibited by the CC antisense nucleic acid; (4) an antibody capable of specifically binding CC proliferation or the activity of a gene in an operon required for CC proliferation; (7) identifying a compound that influences the activity of the gene product or that has an activity against a biological pathway of crequired for proliferation, or that inhibits cellular proliferation; (8) CC required for proliferation, or that inhibits cellular proliferation or the biological pathway of identifying a gene required for cellular proliferation or the biological pathway in which a proliferation-required gene or its gene product lies CC or a gene on which the test compound that inhibits proliferation of an CC compound's activity; (11) a culture comprising strains in which the gene CC compound's activity; (11) a culture comprising strains in which the gene CC pathway in the propenses of culture comprising trains in which the gene CC compound is overexpressed or underexpressed; (12) determining the extent component that inhibits are in the proliferation of the profile and component in the proliferation of the profile and component in the province of the profile and component in 
Query Match
Best Local Similarity
Matches 608; Conserv
                                                                                                                   identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs, or for screening homologous nucleic acids required for proliferation in cells other than S. aureus, S. typhimurium, K. pneumoniae or P. aeruginosa. The present sequence is one of the target prokaryotic essential genes. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI;
                                                                                                                                                                                                                                                            to which each of the strains is present in a culture or collection of strains; or (13) identifying the target of a compound that inhibits the proliferation of an organism. The antisense nucleic acids are useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 14; SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-FEB-2002;
06-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-MAR-2002; 2002WO-US009107.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200277183-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Antisense; ds; prokaryotic essential gene; cell proliferation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Prokaryotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-JUN-2003
                                                                                                    ftp.wipo.int/pub/published
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (ELIT-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-OCT-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e 6213 antisense sequences given in the specification where expression the nucleic acid inhibits proliferation of a cell. Also included are: a vector comprising a promoter operably linked to the nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antisense nucleic acids, useful for identifying proteins or screening homologous nucleic acids required for cellular proliferation to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                invention relates to an isolated nucleic acid comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ם בּי
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2003-029926/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   candidate molecules for rational drug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABU30422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ELITRA PHARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zamudio C,
Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; 2001US-00815242.
; 2001US-00948993.
; 2001US-0342923P.
; 2002US-00072851.
; 2002US-0362699P.
 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           essential
                                                                    BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID NO 22162; 1766pp; English.
                                                                  246 A; 152 C; 193 G; 261 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry)
              15.9%;
71.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Malone
Carr (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                    _pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ਰੂ<sup>′</sup>
ਹ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #15949
0
                Score 462.2;
Pred. No. 4.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Haselbeck R, Yamamoto R,
                1.2; DB 7;
4.2e-136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ohlsen
Forsyth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   discovery programs
                                  Length 852;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŖŖ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zyskind JW;
Xu HH;
0
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                o
0
                                                                                                                                                       RESULT 10
ACA44455
                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
 XXXXXXX
                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                  Prokaryotic essential gene
                                                                                                                                          ACA44455
                                                                      19-JUN-2003
                                                                                                                                                                                                                                                                 1680
                                                                                                                                                                                                                                                                                                                                  1620
                                                                                                                                                                                                                                                                                                                                                                                                      1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                               842
                                                                                                                                                                                                                                                                                                   782
                                                                                                                                                                                                                                                                                                                                                                    722
                                                                                                                                                                                                                                                                                                                                                                                                                                        662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N
                                                                                                                                          standard; DNA; 849
                                                                                                                                                                                                                                                             TTTCAGTCTAA 1690
                                                                      (first entry)
                                                                                                                                                                                                                               852
```

```
Antisense; ds; prokaryotic essential gene; cell proliferation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAAATG 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTACAGCCATCATTTTTCATTGCTGGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT 1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGAGATTTTAACTTTTTTTAACCCTGGGGAATTTGATCTTGGTTGTCTTCGTCCTTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTTGCGCCCTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGATTTTCGCCCAATTAGGTACCAAAA 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAGT 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCA 959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAAGCAATATCTTGAGCTTTGTCGCCGCATTGTTAGTGAAGGGGGAATGGGTTGCTAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGG 1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATATTTATGAAGATCAGCTTGAGTTAATGCGTGACGTACAACTTAAACGCGAGCCTTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTATGGCTCAGATCACGGGCAAAAAAGCCGGCAAGGCATATCATAAAATTGTGAATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGTGATGTTCCGCTTGGATTGAATTTCAATCAAATTCAGGTGTTTACCTTCTTAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGC 1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCATACGCATACTTTTTCTCTTGTGGGCGATACTTTACATCTTACTAGCTATCAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADACTATCGATCAGCTACGTADAATTGTTAATAACTTAACGADAGGTATTGATGATAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGATGATATGGGGGGGGTATATGGTGTGCAAGGCAGAGCATGGCGTAAGCCTAATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCCTAAGCCTGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTG 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATAATCAATTTCCGCTGATTACTACCCGTAAAAGTTATTGGAAAGCGGCGATTGCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACGTACAGGTAAGCATTGCCTCACGGTCATTAATGCAGATTTAGAATATGATGTGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCACGATGGATGATTTTAAAGTCGTTGGCTATCAATCCCACGAACCAATTAAATATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTTAGGTTATATTCGTGGATATGACAATGCCGCTGATTTCCGCGCACTTGGCACGAAAA
                                                                  #26112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
```

```
밁
                                                                                                                                                                        Ş
                                                                                                                                                                                                                                  CC encoding a polypeptide whose expression is inhibited by the antisense concleic acid; (2) a host cell containing the vector; (3) an isolated concleic acid; (4) an antibody capable of specifically binding the polypeptide or its fragment whose expression is inhibited by the concleic acid; (4) an antibody capable of specifically binding the polypeptide; (5) producing the polypeptide; (6) inhibiting cellular consolideration, or the activity of a gene in an operon required for proliferation; (7) identifying a compound that influences the activity of confideration for proliferation, or that inhibits cellular proliferation; (8) compound that influences the activity of confideration which a proliferation-required gene or the biological pathway in which the test compound that inhibits proliferation of an corganism acts; (9) manufacturing an antibiotic; (10) profiling a compound that inhibits proliferation of an compound sectivity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (12) determining the extent compound's activity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (12) determining the extent compound's activity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (12) determining the extent confidency in the proliferation of an organism. The antisense nucleic acids are useful for cleantifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational confidency programs, or for screening homologous nucleic acids required confidency proliferation to isolate candidate molecules for rational confidency proliferation in cells other than S. aureus, S. typhimurium, confidency proliferation of the printed specification, but was obtained in the printed specification, but was obtained in
                                                                S
                                                                                                    Query Match
Best Local S
Matches 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             grap
                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-SEP-2001; 2001US-00948993.
25-OCT-2001; 2001US-0342923P.
08-FEB-2002; 2002US-00072851.
06-MAR-2002; 2002US-0362699P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 14; SEQ ID NO 32325; 1766pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200277183-A2
                                                                                                                                                                                                          ftp.wipo.int/pub/published_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ELIT-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           e 6213 antisense sequences given in the specification where expression the nucleic acid inhibits proliferation of a cell. Also included are:

a vector comprising a promoter operably linked to the nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   invention relates to an isolated nucleic acid comprising any one of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           design;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ָס נָר
 900 AACGAACGGGCAAGCGTTGTTTTGACTGTGATTAATGCCGATTTTGACCTACGATGTGGGCA
                                   N
                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABU40585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELITRA PHARM
                                                                  TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zamudio C,
Trawick JD,
                                  TGAAGCAGTATCTGGCATTGTGTCAACGCATTATCGATGAAGGTGAATGGATTGATAATA
                                                                                                                                                                                                                           format directly from WIPO at
                                                                                                                                                                        ВP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2001US-00815242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                        263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Malone
Carr G
                                                                                                                    13.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INC.
                                                                                                                                                                        A; 155 C; 189 G; 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ទីទី
                                                                                                                                                                                                       pct_sequences
                                                                                                    Score 403.8;
Pred. No. 1.9e
0; Mismatches
                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haselbeck R, Yamamoto R,
                                                                                                                    3; DB 7;
1.9e-117;
                                                                                                                                                                        T; 0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ohlsen
Forsyth
                                                                                                        Indels
                                                                                                                                                                        0 Other;
                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            849;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zyskind
Xu HH;
                                                                                                    0
                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ä
                                                                  899
   959
                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
```

```
RESULT 11
ARZ37118
ID ARZ37
XX ARZ37
XX ARZ37
XX ARZ37
XX Uncle
XX Nucle
XX Genom
KW Genom
                                                                                                          Genome; mutagenesis;
detect; growth; anti-
                        WO9950402-A1
                                                               Haemophilus influenzae
                                                                                                                                                                         Nucleotide
                                                                                                                                                                                                                    28-JAN-2000
                                                                                                                                                                                                                                                                                                           AAZ37118 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1560 CAGCGCCTCAGTTCCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1020 TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTTCGCCAATTAGGTACCAAAA 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                   842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             542 GCTGTGATGTCCCATTAGGGTTGAATTTTAATCAAATTCAATGCTTTGTATTATTAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                122 ATRACCAATTTCCACTCATAACAACGCGTAAAAGTTTTTACAAAGCCGCGATTGCGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           960 ACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAGT 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 AACGGACAGGAACCCGTTGTTTAACGGTGATAAATGCCGATCTGGAATATGATGTTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTCAGT 1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTTGGCGTTGATGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                   TCACGGT 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCACGACAGATGACTTTAGTGTTGAAGGTTATCAGTGTCACGAGGCGATAAAATACCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATTACCTAAGCTACATATTAATCCAAACATTAAGACATTAGATGATATAGAAACTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATTTATGAGAACCAATTACCTCTGATGCGTGATGTTCAACTAAAAAGAGAGCCATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGTGGCTCAAATCACAGGGCATAAACCAGGTAAAGCATTCCATAAGATAGTTAATGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGATGGCACAGATCACAGGGAAAAAGCCCGGGCTTGGCGTATCACAAGATCGTCAATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGAGATAGTCACTTTTTATAATCCCGGAGAAACAGCGTTAGGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGATGATATGGGCCGAGTCTATGGTGTTCAAGGACGCCAATGGCAACGCCCTGATGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTGGAACGCGAATGCTAATGAAAATAGCGCATGGTTAAATAATCCGCATCGTAAGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATTAGGGTACTTACGTGGTTATGATAATGCAGCACAATTTCGTGCTATTGGCTGTAATA
                                                                                                                                                                         sequence of H.influenzae HI0904 gene
                                                                                                                                                                                                                    (first entry)
                                                                                                          anti-microbial therapy; genomic footprinting
                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                              transposon; isolate; locate; essential gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
```

```
CC Nucleotide sequences AAZ37113-Z37126 are essential Haemophilus influenzae CC genes that have been identified by the methods of the invention. The CC invention relates to a method for locating essential regions of a portion CC of an organism's genome by: (1) in vitro mutagenising DNA having the CC sequence of the region with a transposon; (ii) identifying cells of the CC organism transformed with the mutagenised DNA of (1); and (iii) locating the region by detecting the absence of transposons in the region of the CC mutagenised cells containing the mutagenised DNA. The invention also CC relates to a method for isolating a compound that modulates the CC expression of a nucleic acid sequence operably linked to a gene promoter, CC cell growth or viability. The methods are used to detect genes that are essential for the growth and viability of organism. Such genes can be CC used e.g. as targets for anti-microbial therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Simi
Matches 467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Detection useful as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-OCT-1999
                                                                                                                                                                                                                                                                                                                             321
                                                                                                         501
                                                                                                                                                                                                                                                        381
                                                                                                                                                                                                                                                                                             314
                                                                                                                                                                                                                                                                                                                                                                                                                                             194
554
                                558
                                                                    494
                                                                                                                                           434
                                                                                                                                                                                441
                                                                                                                                                                                                                    374
                                                                                                                                                                                                                                                                                                                                                                    254
                                                                                                                                                                                                                                                                                                                                                                                                      261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCTTTTAGGTGAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTG
                   CCTTAGAAGGCGTGGTTCTGTTCTTTAITCTTAATTGGTTTATTGGTAAACCTCGTCCGC
                                                                                                                                                                      GTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTTGGGCCTT
                                                                                                                                                                                                                    ATTTTTGGCAAACGGCTGATTTTGTTGCGCCCTTTGATTCCGTTTTGGTTTAGGCA
                                                                                                                                                                                                                                                 CCTTCTTTGGTGTGGCCGATTTTGTTGCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGAC
                                                                                                                                                                                                                                                                                                                          ACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCCAACGCA
                                                                                                                                                                                                                                                                                                                                                                                           ATCTGTTCCTTGCTGACCCTCTTTATTTATTCAAAGTGTGGGACTGGCGGCATGTCCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGTGCTAATCGCCCAAATAGCGGTTGGACAGTAGATCAAGTTGATAGCTTACTTTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGAGCGGATCGCGCGGGCAGTGGTTGGACGTGAGCGAGTCTCTGACTTGTTATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACGTTGGTATGGCTTGATGTACCTTTTAGGTTTTGTTTTTTGCACGTTGGCTTGCGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATC
                                                                                          TTGTATTCCCTAATGGTGGCC---CACTGCCGCGCCATCCTTCACAGCTTTATGAATTCG
                                                                                                                                             GAATTGGTAATTTCATTAATCTTGAACTATGGGGACGCGAAACGAATGTGCCTTGGGCAA
                                                                                                                                                                                                                                                                                                                                                                      ATCATTTCTTACAAGAACCACTTTATTTATTCCGCGTTTGGGAAGGTGGAATGTCGTTCC
TTTTAGAAGGCCTGGTGTTTTACGATTCTGAATATTTTTAATAAAAAACCACGTCCAA
                                                                      <u>ÁCGGTGGCTTAATTGGTGTAATTGTTGCTÁTGATTTGGACATCTTATTCTCÁAAAACGTÁ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of genes essential for the growth and viability e.g. targets for anti-microbial therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP; 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Akerley B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-0079770P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99WO-US006139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5F;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COLLEGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; 139 C; 185 G; 305 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rubin E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 292.2; DB 2
Pred. No. 7.8e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Camilli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of organism,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                               493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140
                                                                                                                                                                                                                    433
                                                                                                                                                                                                                                                        440
                                                                                                                                                                                                                                                                                               373
                                                                                                                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        200
613
                                617
                                                                    553
                                                                                                         557
                                                                                                                                                                                500
                                                                                                                                                                                                                                                                                                                                                                    313
                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                             253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 중 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     728
```

δ

밁

Ş

문 8 밁 5 망 8 밁 Ş 맑 Ś 밁 S 밁 Ś

밁

```
CCCTTTGCTTGCCGATGATTATTGGTGGTGCTTTCATTATTGGCTTGGGCTTATTCACGC
                                    TCCTCTCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTTGGTCTTACAAGCGC
                                                                                                                                                      ACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCAATGGGGCAAA
                                                                                                                                                                                                                                      TGGCTTCTGTTGCAGGTTTATTCTTAATTGGTTATGGCGTCTTCCCGTTTTATTGTGGAAT
                                                                                                                                                                                                                                                                        TAGGCAGCGTATCCGGACTGTTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAAT
                                                                                                                    ATGTGCGTGAACCTGAAG
                                                                                                                    ----TTGAAAATTTCTTTGGGATTATTACACGAGGGCAAG
                                                             796
                                                                                                                                                                                                                                                                                                   677
                                                                                                                       727
```

nucleoti

RESULT 12
RCEGT367_27/c
CCDRT ACTEGT367_07
CCDRT ACTEGT367_02
RCEGT367_00
RCEGT367_11
RCEG ACTE67367-20
ACTE67367-21
ACTE67367-22
ACTE67367-24
ACTE67367-26
ACTE67367-27
ACTE67367-27
ACTE67367-37
ACTE67367-39
ACTE67367-39
ACTE67367-35
ACTE67367-35
ACTE67367-35
ACTE67367-35
ACTE67367-36
ACTE67367-40
ACTE67367-50
ACTE67367-50
ACTE67367-50
ACTE67367-50
ACTE67367-50
ACTE67367-50) of ACF67367 57 fragments 15000001 15000001 16000001 170000001 19000001 19000001 220000001 220000001 220000001 220000001 220000001 220000001 220000001 230000001 330000001 34000001 34000001 34000001 34000001 34000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 340000001 1200001 1000001 700001 800001 900001 100001 200001 300001 400001 500001 Begin 1110000
1210000
1310000
1310000
1510000
1610000
1710000
2010000
2210000
2210000
2210000
2210000
2310000
2510000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000
3110000 1010000 410000 510000 610000 710000 from 210000 310000 End 110000 LOCUS base ase 2700001 (Photorhabdus luminescens ACF67367 Accession Acf67367

```
ş
                                                                                                                          밁
                                                                                                                                                   S
                                                                                                                                                                                         밁
                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W W W
                          δ
                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACF67367_54
ACF67367_55
ACF67367_56
                                                                                                                                                                                         93797
                                                                                                                                                                                                                                                                                                                                                                                                                                                 94037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94337
                                                                                                                            93737
                                                                                                                                                                                                                                                        93857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94157
                                                                                                                                                                                                                                                                                                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               374
                                                                                                                                                           899
                                                                                                                                                                                                                                                                                      548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGGACGAGTAAC----GGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTTCCACGGCGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATTTCCCTGCCTTTCTCGACAACCCCCTTTATTTGTTTAAAGTTTGGGATGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGCCTCAGGGTTATCTGCAGTTTCCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCT
                                                                                  ATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGATGGTCT
                                                                                                                            ATAGTCGAGTTCTTCCGCCAACCAGATGCACAACTGGGCTTATTCGACGGGATCAGT---
                                                                                                                                                                                                                                                      TATGAAATGGCGTTGGAAGGGATCGTTCTGTTCATTATTTTGAATTTATATATCCGTAAA
                                                                                                                                                                                                                                                                                      TATGAATTCGCCTTAGAAGGCGTGGTTCTTGTTCTTTATTCTTAATTGGTTTATTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                  CCTTGGGCTTTTGTATTCCCTA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAACGCCATTTCTTACAAGTTGCTGACTTCATTGCCCCGTTAGTCCCTTTTGGTTTAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAACGCACCTTCTTTGGTGGCCGATTTTGTTTGCCCCTTTAGTGCCATTCGGTTTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTTTCCACGGTGGTTAGTGGGGGGTTATCTGCGCAATGTGGTGGTTTGGCCGCAGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATTTTGATCTGTTCCTTGCTGACCCTCTTTATTTATTCAAAGTGTGTGGACTGGCCGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTTATGCAGGTTTTGCTGGCGTATTTGTTGGTGGCCGTCTGGGCTACGTCCTGTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATAGCCCTCCATTGGTATGGTTTCATGTACTTGGTTTGGGTTTGTATTCGCCATGTGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTAGCGGTGCGCTGGTATGGCTTGATGTATTTTGGTGGGTTTCCTTTTTTGCTATGTGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGAGTAACAGCTACCTGGCATTTCCTAATATTGACCCGGTCATTTTTTCAATAGGTCCA
TATAAACACCAAGGTAATAAGGTACAAGAGGTAAAATGAAACAGTATCTGG
                             TACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAG
                                                           ATGGGGCAAATTCTTTCTATACCAATGATCCTGGCGGGAATATTAATGATGATATGGGCA
                                                                                                                                                         CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCA
                                                                                                                                                                                       CCTCGCCCAATGGGCAGTGTTTCCCGGTTTATTCTTAATTGGCTACGGTATTTTCCGAGTG
                                                                                                                                                                                                                        CCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTC
                                                                                                                                                                                                                                                                                                                     CCCTCACTGTTATCAGTACTTGAGCAATATGGTGTTCTGCCACGTCACCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                  CCGTGGGCGATGTTATTCCCAAGCTCCCGTGGTGAAGATATTGCATTGGCTGCAACCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGGGAGAATCGGTAATTTTAATTAACGGCGAGTTGTGGGGACGTGTCACATTGGATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGACACGCAGGGCAGCGAAACCCCAATAGTGGTTGGACAAAAAACGAAGTAGAGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5400001
5500001
5600001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.6%;
                                                                                                                                                                                                                                                                                                                                                    ------ATGGTGGCCCACTGCCGCCCATCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 278.2; DB 7
Pred. No. 4.8e-76;
0; Mismatches 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5510000
5610000
5648894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 110000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69;
                               838
 93570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               490
                                                                                                                                                                                                                        667
                                                                                                                                                                                                                                                                                      607
                                                                                                                                                                                                                                                                                                                                                   547
                                                                                                                                                                                                                                                                                                                                                                                                                  512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                             9362
                                                                                                                            9368
                                                                                                                                                                                         93738
                                                                                                                                                                                                                                                                                                                     93858
                                                                                                                                                                                                                                                                                                                                                                                                                                                 93978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
```

RESULT 13
ACF65386_0
WP Sequence split into
WP Fragment Name

7

fragments Begin

LOCUS End

ACF65386

Accession Acf65386

S

14 ATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCT

ŗ\$

Query Match Best Local S Matches 544

Similarity

9.6%;

544;

Conservative

0;

Score 278.2; DB 7; Pred. No. 4.8e-76; 0; Mismatches 278;

Indels Length

69;

Gaps

ω ••

ВB

7;

Sequence

700779

BP; 190440

A; 140977 C; 164444 G;

204917 T; 0 U; 1 Other;

```
ACF65386_0
ACF65386_1
ACF65386_2
ACF65386_3
ACF65386_4
ACF65386_5
ACF65386_6
ACF65386_6
                        response or sensitivity to toxins and antibiotics produced by P. Iuminescens. Cells transformed to express the genes are useful for recombinant production of the proteins, particularly toxins and antibacterials useful as insecticides, bactericides and fungicides. The genes, proteins, vectors containing the genes and Ab are also useful therapeutically (to treat microbial infection by bacteria or fungi that are sensitive to P. luminescens-encoded toxins or antibiotics) and as biopseticides. Other uses of the genes and the proteins are as virulence factors and for identifying targets of human diseases for which P. luminescens is a model (particularly plague and whooping cough). This sequence represents one of the isolated P. luminescens genes
                                                                                                                                                                                                    The invention relates to the isolation of genes and their encoded proteins from Photorhabdus luminescens. The isolated sequences are sources of probes and primers for detecting the genome of P. luminescens and related species; to study polymorphisms; for gene analysis and for detection/amplification of the genes. Antibodies (Ab) raised against the polypeptides encoded by the genes are used for detection/identification of P. luminescens, e.g. in foods. The genes, proteins, Ab and cells that carry a gene-containing vector are used to select compounds that carry a gene-containing vector are used to select compounds that modulate, regulate, induce or inhibit expression of the genes in plants, animals or microorganisms other than P. luminescens and are able to alter
                                                                                                                                                                                                                                                                                                                                                                                                               Genomic sequence of Photorhabdus luminescens useful e.g. as therapeutic antimicrobials and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           detection; food; gene expression; plant; animal; microorganism; toxin; antibiotic; biopesticide; virulence factor; disease model; plague; whooping cough; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                 Claim 1; SEQ ID NO 39; 1205pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Buchrieser C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Duchaud
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-FEB-2001; 2001FR-00001659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-FEB-2002; 2002WO-IB003040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200294867-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Photorhabdus luminescens nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CNRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2003-148459/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ) INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Taourit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CENT NAT RECH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PASTEUR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100001
200001
300001
.400001
500001
600001
NA; 700779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Glaser P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110000
210000
310000
410000
510000
610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Frangeul
                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                               and encoded polypeptides, agricultural pesticides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kunst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ্য
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Danchin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Þ
```

Ś

Ş

S 밁

```
RESULT 14
ACF65386 1
Continuation (2 of 7) of ACF65386 1
WP Sequence split into 7 f.
WP ACF65386 1
WP ACF65386 2
WP ACF65386 3
WP ACF65386 4
WP ACF65386 5
WP ACF65386 6
                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                      밁
Query Match
                                                                                                                                                                                          105005
                                                                                                                                                                                                                                                                                                                                      104828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             104528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104168
                                                                                                                                                                                                                                                                                                                                                                                    104768
                                                                                                                                                                                                                                                                                                                                                                                                                                 104708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        104408
                                                                                                                                                                                                                                                                                       104888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             194
                                                                                                                                                                                                                788
                                                                                                                                                                                                                                                                                                          CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTTGGTGGCTTCATTTCA
                                                                                                                                                                                                                                                                                                                                                 CCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                    TATGAAATGGCGTTGGAAGGGATCGTTCTGTTCATTATTTTGAATTTATATATCCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                CCCTCACTGTTATCAGTACTTGAGCAATATGGTGTTCTGCCACGTCACCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGGACGAGTAAC---GGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAACGCCATTTCTTACAAGTTGCTGACTTCATTGCCCCCGTTAGTCCCTTTTGGTTTAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAACGCACCTTCTTTGGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATTTTGATCTGTTCCTTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTTATGCAGGTTTTGCTGGCGTATTTGTTGGTGGCCGTCTGGGCTACGTCCTGTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTATTCGCCGGCTTTTTAGGTGAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGACACGCAGCGAAACCCCAATAGTGGTTGGACAAAAAACGAAGTAGAGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAGCCCTCCATTGGTATGGTTTCATGTACTTGGTTTGGGTTTGTATTCGCCATGTGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGAGTAACAGCTACCTGGCATTTCCTAATATTGACCCGGTCATTTTTTCAATAGGTCCA
                                                                                                                                                                                                                TACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAG
                                                                                                                                                                                                                                                     ATGGGGCAAATCCTCTCCTTACCTATGGTGÄTCATCGGTATTTTGATGATGGTTTGGTCT
                                                                                                                                                                                                                                                                                       ATAGTCGAGTTCTTCCGCCAACCAGATGCACAACTGGGCTTATTCGACGGGATCAGT---
                                                                                                                                                                                                                                                                                                                                      CCTCGCCCAATGGGCAGTGTTTCCCGGTTTATTCTTAATTGGCTACGGTATTTTCCGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                TATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGTGGGCGATGTTATTCCCAAGCTCCCGTGGTGAAGATATTGCATTGGCTGCAACCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTTGGGCTTTTGTATTCCCTA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGGGGAGAATCGGTAATTTTATTAACGGCGAGTTGTGGGGACGTGTCACATTGGATACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTTTCCACGGTGGTTAGTGGGGGGTTATCTGCGCAATGTGGTGGTTTGGCCGCAGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCTTCCACGGGGGTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATTTCCCTGCCTTTCTCGACAACCCCCTTTATTTGTTTAAAGTTTGGGATGGTGGGATG
                                                                                                                                                                                           TATAAACACCAAGGTAATAAGGTACAAGAGGTAAAATGAAACAGTATCTGG
                                                                                                                                                                                                                                         ATGGGGCAAATTCTTTCTATACCAATGATCCTGGCGGGAATATTAATGATGATATGGGCA
                                                                                                     ACF65386 from base 100001 (Photorhabdus luminescens nucleotide fragments LOCUS ACF65386 Accession Acf65386 Begin End
                                   100001
200001
300001
400001
500001
 9.6%;
 Score 278.2;
                       110000
210000
310000
410000
510000
610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTT
 BB
 7;
 Length 110000;
                                                                                                                                                                                                                  838
                                                                                                                                                                                           105055
                                                                                                                                                                                                                                          105004
                                                                                                                                                                                                                                                                                                                                                              667
                                                                                                                                                                                                                                                                                                                                                                                                          607
                                                                                                                                                                                                                                                                                                                                                                                                                                                        547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             104587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104227
                                                                                                                                                                                                                                                                                                                                                                                    104827
                                                                                                                                                                                                                                                                                                                                                                                                                                 104767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          104527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104347
                                                                                                                                                                                                                                                                                       104944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       512
                                                                                                                                                                                                                                                                                                                                      104887
 RESULT 15
ACF69784
ID ACF69
XX
AC ACF69
XX
AC ACF69
XX
DT 20-NC
XX
DE Photo
                                                                                                                                                 ঠ
                                                                                                                                                                               밁
                                                                                                                                                                                               Ś
                                                                                                                                                                                                                      당
                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                          DP
G
                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                         뮍
                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                       ACF69784
  Photorhabdus
                         20-NOV-2003
                                                                                                                                                                                                                                                                                                                           4768
                                                                                                                                                                                                                                                                                                                                                                                                                      4648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4288
                                                                                                                                                                                                                             4888
                                                                                                                                                                                                                                                                            4828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4528
                                                                                                                                                                                4945
                                                                                                                                                                                                                                                     899
                                                                                                                                                                                                                                                                                                  608
                                                                                                                                                                                                                                                                                                                                                548
                                                                                                                                                                                                                                                                                                                                                                                               513
                                                                                                                                                                                                                                                                                                                                                                                                                                             491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134
```

Ş

luminescens nucleotide sequence

#8251.

(first

entry)

DNA;

```
Best Local Similarity 61.1%;
Matches 544; Conservative
5005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATGAAATGGCGTTGGAAGGGATCGTTCTGTTCATTATTTTGAATTTATATATCCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAACGCACCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAC 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCAATCGCCGAGCGGATCGCGCGGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTG
  TATAAACACCAAGGTAATAAGGTACAAGAGGTAAAATGAAACAGTATCTGG 5055
                                                                                                                           ATGGGGCAAATCCTCCTTACCTATGGTGATCATCGGTATTTGATGATGATGGTCT
                                                                                                                                                                                            ATAGTCGAGTTCTTCCGCCAACCAGATGCACAACTGGGCTTATTCGACGGGATCAGT---
                                                                                                                                                                                                                          CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTTGGTGGCTTCATTTCA
                                                                                                                                                                                                                                                                                                                          CCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                       TATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGTAAC----GGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAACGCCATTTCTTACAAGTTGCTGACTTCATTGCCCCGTTAGTCCCTTTTGGTTTAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTTTCCACGGTGGTTTAGTGGGGGGTTATCTGCGCAATGTGGTGGTTTGGCCGCAGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATTTCCCTGCCTTTCTCGACAACCCCCTTTATTTGTTTAAAGTTTGGGATGGTGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTTTGATCTGTTCCTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTTATGCAGGTTTTGCTGGCGTATTTGTTGGTGGCCGTCTGGGCTACGTCCTGTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGACACGCAGGGCAGCGAAACCCAATAGTGGTTGGACAAAAAACGAAGTAGAAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATAGCCCTCCATTGGTATGGTTTCATGTACTTGGTTTGGGTTTGTATTCGCCATGTGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAGTAACAGCTACTGGCATTTCCTAATATTGACCCGGTCATTTTTTCAATAGGTCCA 4227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCT
                                                                                               ATGGGGCAAATTCTTTCTATACCAATGATCCTGGCGGGAATATTAATGATGATATGGGCA
                                                                                                                                                                                                                                                                                            CCTCGCCCAATGGGCAGTGTTTCCCGGTTTATTCTTAATTGGCTACGGTATTTTCCGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCTCACTGTTATCAGTACTTGAGCAATATGGTGTTCTGCCACGTCACCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGTGGGCGATGTTATTCCCCAAGCTCCCGTGGTGAAGATATTGCATTGGCTGCAACCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTTGGGCTTTTGTATTCCCTA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGGGAGAATCGGTAATTTTATTAACGGCGAGTTGTGGGGACGTGTCACATTGGATACG
                                             TACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGTAGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 4.8e-76;
0; Mismatches 278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGGTGGCCCACTGCCGCCCATCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69;
                                                  838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                 787
                                                                                                                                                                                                                                                 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4287
                                                                                                    5004
                                                                                                                                                                                                 4944
                                                                                                                                                                                                                                                                                                 4887
                                                                                                                                                                                                                                                                                                                                                                                              4827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4347
                                                                                                                                                                                                                                                                                                                                                667
                                                                                                                                                                                                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    u
```

```
Query Match
Best Local S
Matches 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            response or sensitivity to toxins and antibiotics produced by P. luminescens. Cells transformed to express the genes are useful for recombinant production of the proteins, particularly toxins and antibacterials useful as insecticides, bactericides and fungicides. The genes, proteins, vectors containing the genes and Ab are also useful therapeutically (to treat microbial infection by bacteria or fungi that are sensitive to P. luminescens-encoded toxins or antibiotics) and as biopesticides. Other uses of the genes and the proteins are as virulence factors and for identifying targets of human diseases for which P. luminescens is a model (particularly plague and whooping cough). This sequence represents one of the isolated P. luminescens genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 876 BP; 200 A; 177 C; 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      proteins from Photorhabdus luminescens. The isolated sequences are sources of probes and primers for detecting the genome of P. luminescens and related species; to study polymorphisms; for gene analysis and for detection/amplification of the genes. Antibodies (Ab) raised against the polypeptides encoded by the genes are used for detection/identification of P. luminescens, e.g. in foods. The genes, proteins, Ab and cells that carry a gene-contraining vector are used to select compounds that modulate, regulate, induce or inhibit expression of the genes in plants, animals or microorganisms other than P. luminescens and are able to alter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Antibacterial; fungicide; insecticide; polymorphism; genetic analysis; detection; food; gene expression; plant; animal; microorganism; toxin; antibiotic; biopseticide; virulence factor; disease model; plague; whooping cough; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 2; SEQ ID NO 8251; 1205pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genomic sequence of Photorhabdus luminescens useful e.g. as therapeutic antimicrobials and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2003-148459/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200294867-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Buchrieser C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Duchaud E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-FEB-2001; 2001FR-00001659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-FEB-2002; 2002WO-IB003040.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to the isolation of genes and their encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
   181
                                                           194
                                                                                                                           121
                                                                                                                                                                                      134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               528;
                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                     74
                                                                                                                                                                                                                                                                                                                                                                                                                                                14
                                                                                                                                                                                                                                                                                                                                                                                    _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INST PASTEUR.
CNRS CENT NAT RECH SCI.
                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCT
                                                                                                                                                                                      GCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTG 193
                                                                                                                                                                                                                                                      ATAGCCCTCCATTGGTATGGTTTCATGTACTTGGTTTGGGTTTGTATTCGCCATGTGGCTA 120
                                                                                                                                                                                                                                                                                                    CTAGCGGTGCGCTGGTATGGCTTGATGTATTTTGGTGGGTTTTCCTTTTTTGCTATGTGGTTG 133
                                                                                                                                                                                                                                                                                                                                                                                    ATGAGTAACAGCTACCTGGCATTTCCTAATATTGACCCGGTCATTTTTTCAATAGGTCCA
CTTTATGCAGGTTTTGCTGGCGTATTTGTTGGTGGCCGTCTGGGCTACGTCCTGTTTTAT
                                                        TTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTAC 253
                                                                                                                           GCGACACGCAGGGCAGCGAAACCCCAATAGTGGTTGGACAAAAAAACGAAGTAGAGAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Taourit S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glaser P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 277.8; DB 7; Pred. No. 3.2e-77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G; 278 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Frangeul L, Kunst F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agricultural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 876;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polypeptides,
al pesticides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Danchin A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3
```

Search completed: July 31, Job time: 770 secs 2004, 13:34:23

ঠ

밁 S

á 밁 á 밁

문

F;

This Page bill in the page.

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0% Maximum Match 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                          a
                                                                                                                                                                                                           00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                    744.2
410.8
2292.2
2382.4
2882.4
2882.4
2882.4
2882.4
1152.2
1152.2
1152.2
1153.6
64.8
64.8
64.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-700-712A-1
2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    July 31, 2004, 12:39:50; Search time 150 Seconds (without alignments)
10762.348 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             682709 seqs, 277475446 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Maximum Match 100%
Listing first 45 summaries
         gagaaggtttgttatgcctc.....cagcgaaatcggcgctgcag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/backfiles1.seq:*
  GenCore version 5.1.6 (c) 1993 - 2004 Compugen Ltd
US-09-543-681A-2282
US-09-277-565-17
US-09-252-991A-15232
US-09-252-991A-2365
US-09-252-991A-2365
US-09-252-991A-2365
US-09-489-03PA-2965
US-09-489-03PA-2965
US-09-988-1
US-09-99-988-1
US-09-596-002-35
US-09-252-991A-15244
US-08-935-433-1
US-09-252-991A-15244
US-08-935-433-1
US-09-961-253-132-1
US-09-962-665-6
US-09-367-007C-38
US-09-962-665-6
US-09-195-133-36
US-09-963-333-6
US-09-195-333-6
US-09-195-333-6
US-09-195-333-2491
US-09-107-332A-2491
US-09-107-332A-2491
US-09-107-332A-2491
US-09-114-000C-941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-557-884-1
US-09-643-990A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1365418
Sequence 1, Appli Sequence 2282, Appli Sequence 17, Appl Sequence 15221, A Sequence 15227, A Sequence 2365, Ap Sequence 2365, Ap Sequence 3810, Appli Sequence 35, Appli Sequence 1, Appli Sequence 2, Appli Sequence 1, Appli Sequence 1, Appli Sequence 2, Appli Sequence 29, Appli Sequence 15243, A Sequence 29, Appli Sequence 6, Appli Sequence 1092, Appli Sequence 1991, Appli Sequence 1992, Appli Sequence 6, Appli Sequence 1992, Appli Sequence 1992, Appli Sequence 357, Appli Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
```

Ś

2 AGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCCAATATTGACCCCCGTATTGTTT

61

3 m O	US	0 00 0 000
Query Ma Best Loc Matches	ULT : 09-55 GEN	00000000000000000000000000000000000000
Match Local Simi nes 1134;	TIT 1 9-557-884-1 quence 1, Application US/09557884 tent No. 6506581 TENERAL INFORMATION: APPLICANT: Pleischmann et al TITLE OF INVENTION: The Nucle TORRESPONDENCE ADDRESS: ADDRESSE: Human Genome STATE: MD COUNTRY: USA ZIP: 20850 COMPUTER READABLE FORM: MEDIUM TYPE: 31/2 inch COMPUTER: DATE: 25-Apr-200(CLASSIFICATION NUMBER: US/ FILING DATE: 25-Apr-200(CLASSIFICATION NUMBER: US/ FILING DATE: JUN-5-195 ATTORNEY/AGENT INFORMATION TELEPHONE: 301-309-8439 INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS: LENGTH: 1830121 base pa: TERGOLOGY: linear SEQUENCE DESCRIPTION: SEQ ID 9-557-884-1	444444444 UU 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ilarity Conservat	-884-1 e 1, Application US/09557 k. IMPORMATION: APPLICANT: Fleischmann et TITLE OF INVENTION: The H TITLE OF INVENTION: The H TORRESPONDENCE ADDRESS: ADDRESSEE: Human Gen STREET: 9410 Key Wes CITY: ROCKVIlle STATE: MD COUNTRY: USA ZIP: 20850 COMPUTER READABLE FORM: MEDIUM TYPE: 3 1/2 i OPERATING SYSTEM: MS OPETWARE: ASCII Text OPERATING SYSTEM: MS OPETWARE: ASCII Text CULASSIFICATION NUMBER: FILING DATE: 25-Apr- CLASSIFICATION NUMBER: FILING DATE: 35-Apr- FILING DATE: 35-Apr- FILING DATE: 30-30-843 REFERENCE/DOCKET NUM- NAME: MICHELE S. MA REGISTRATION NUMBER: REFERENCE/DOCKET NUM- REFERENCE/DOCKET NUM- TELLEPAX: 301-30-843 MATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS: TOPOLOGY: linear SEQUENCE DESCRIPTION: SEC- 884-1	
25.6% 66.7% vative	ication US/09557884 81 11 ATION: Fleischmann et al INVENTION: The Nucl INVENTION: The Nucl INVENTION: The Pool Thereof, SEQUENCES: 1 DENCE ADDRESS: ESSEE: Human Genome ET: 9410 Key West A FRY: USA 20850 READABLE FORM: UM TYPE: 3 1/2 inch UTER: Dell Pentium ATING SYSTEM: MS DO ATING SYSTEM: MS DO WARE: ASCII Text PPLICATION NUMBER: US/ NG DATE: 25-Apr-200 WARE: ASCII Text PPLICATION VUMBER: 08/ NG DATE: JUN-5-1995 NG DATE: JUN-5-1995 AGENT INFORMATION INFORMATION NUMBER: 48 FRANCE/DOCKET NUMBER: 48 FRANCE/DOCKET NUMBER: 48 FRANCE JOUS-1: 18 CHARACTERISTICS: TH: 1830121 base pa 1. DOESCRIPTION: SEQ ID DESCRIPTION: SEQ ID DESCRIPTION: SEQ ID DESCRIPTION: SEQ ID	870 801 1014 35100 35100 35100 35100 621 621 621 1639 7218
	/095578: //095578: //095578: //095578: //09578:	**************************************
Sco Pro	mann et al. If The Nucleotide sthe Haemophilus Thereof, and Use RESS: 1 1/2 inch diskett 1 1/2 inch diskett 1 Pentium 1 e 1 e 1 inch diskett 1 PAT 2 PAT 3 PAT 4	US-0 US-0 US-0 US-0 US-0 US-0 US-0 US-0
Score 744.2; DE Pred. No. 1.7e-2); Mismatches	with with 17 10 0 5 d to go and 0.0	-09-252-991A-1522 -09-489-039A-2884 -09-107-532A-2355 -09-207-659A-17 -08-757-669A-17 -09-230-371A-17 -09-231-301C-2654 -09-134-001C-2654 -09-134-001C-3654 -09-134-001C-3654 -09-134-001C-3654 -09-134-001C-3654 -09-134-001C-3654 -09-232-463-14 -08-232-463-14 -08-232-463-14
744 No.	cotide sequential signature in the sequence in	20 20 20 20 20 20 20 20 20 20 20 20 20 2
.2; 1. che	de se lus i Uses s s cette cette s s s s s s s s s s s s s s s s s s	991A-1: 991A-2: 532A-2: 532A-2: 669A-1: 1371A-1: 1371A-1: 1527-27 0000C-2: 0000C-2: 0000C-3: 433-3: 132-3: 132-3: 132-3: 132-3: 132-3: 132-3: 132-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 133-3: 143-3:
DB 7e-2 8 5	nfil Th	-14 B-2 B-2 B-2 B-2 B-2 B-2
345	sequence of sinfluenzes influenzes ses Thereof Ces, Inc. Ces, Inc. 2 5693	15224 2884 2355 7 117 117 117 1130 7130 7130 7131 7131
	On office to	M ₂
Length Indels	. R	
gth els	Ω e	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
183	Genome.	Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc Sequenc
830121; 27; G		sequence
Gaps	Fragment	12888 117, 2888 117, 2888
Bđ.	men	15224 23854, 2355, 1, Ap 17, A 17, A 17, A 17, A 117, A 117, A 117, A 117, A 117, A 117, A 114, A 295, A 295, A
2	rt o	Appli Appli Appli Appli Appli Appl Appl
4.		

```
Ś
                                                                                                                                                                       밁
                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                           S
                                                                              밁
                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                 959088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             958266
                                                                                                                                                                                                                                                                                                                                                                          958908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        958860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      958800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       958686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                958506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               958326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           958146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       958086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               958386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCAAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGT
                                                                              GCTGAATTTTTAGGTTATATTCGTGGATATGACAATGCCGCTGATTTCCGCGCACTTGGC
                                                                                                             GCCGAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGT
                                                                                                                                                                                                     GTGGGCAACAATCAGTTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTA 1012
                                                                                                                                                                                                                                                                          GCTAATGAACGTACAGGTAAGCATTGCCTCACGGTCATTAATGCAGATTTAGAATATGAT
                                                                                                                                                                                                                                                                                                        GAAAATGAACGAACGGGCAAGCGTTGTTTGACTGTGATTTAATGCCGATTTGACCTACGAT
                                                                                                                                                                                                                                                                                                                                                                          ATTTTTATGAAGCAATATCTTGAGCTTTGTCGCCGCATTGTTAGTGAAGGGGAATGGGTT
                                                                                                                                                                                                                                                                                                                                                                                                    AGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTATGGCTTGGGCTTATTCACGC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTGGGATTATTACACGAGGGCAAGCCCTTTGCTTGCCGATGATTATTGGTGGTGCTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGGCTTCATTTCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGTCTTCCGTTTTATTGTGGAATATGTGCGTGAACCTGAAG-----TTGAAAATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTTTTATTANAAAACCACGTCCAATGGCTTCTGTTGCAGGTTTATTCTTAATTGGTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TEGTTTATTEGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAGTAACGGATGTGCCTTTGGGCTTTTGTATTCCCTAATGGTGGCC----CACTGCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTCCGTTTGGTTTAGGTTTAGGCAGAATTGGTAATTTCATTAATCTTGAACTATGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGCCATTCGGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGACATCTTATTCTCAAAAACGTAATTTTTGGCAAACGGCTGATTTTGTTGCGCCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTTGTTGCCCCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ĠTTTGGGAAGGTGGAATGTCGTTCCACGGTGGCTTAATTGGTGTAATTGTTGCTATGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCAAGTTGATAGCTTACTTTTCAACGGTTTTATGGGGGGTGTTTATTGGCGGACGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGTAGTGATCGGTGGCCGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTTTTGCACGTTGGCTTGCGGTTCGCCGTGCTAATCGCCCAAATAGCGGTTGGACAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGGGGGGAGTGGTTGGACGCGT 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGCTTGGCGATAGTAATATCGGCTTACGTTGGTATGGCTTGATGTACCTTTTAGGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGATCGGC-----CCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTC
                                                                                                                                                                            GTGGCGAATAATCAATTTCCGCTGATTACTACCCGTAAAAGTTATTGGAAAGCGGCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u> egracarrecerrecerreregaaracerecereaeceaearecreaerreeerererr</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATCCATCACAACTTTATGAAGCCTTTTTAGAAGGCCTGGTGTTGTTTACGATTCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCGAAACGAATGTGCCTTGGGCAATGATTTTCCCGAATGATCCTCTTTTACTGCCTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - AAAAGTGCGGTCATAAAATAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115
                                1132
                                                                                                                            1072
                                                                                                                                                                                                                                                                                                                          952
                                                                                                                                                                                                                                                                                                                                                                                                                          892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        958907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      958799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            958505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               958445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               958385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           958265
                                                                                 959147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      958859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       958745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     958685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     958625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                958565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             958325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       958145
                                                                                                                                                                            959087
                                                                                                                                                                                                                                                                            959027
                                                                                                                                                                                                                                                                                                                                                                          958967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         958205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 2
US-09-643-990A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 당. 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09643990A
Patent No. 6528289
GENERAL INFORMATION:
APPLICANT: Robert D. Fleischmann
STATE: MD
COUNTRY: USA
ZIP: 20850
ZIP: 20850
COMPUTER READABLE FORM:
MEDIUM TYPE: 3 1/2 inch diskette
COMPUTER: Dell Pentium
OPERATING SYSTEM: MS DOS v6.22
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION STEE: 23-Aug-2000
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              959748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         959628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       959568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        959508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    959328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    959268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  959208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                959148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1253
                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Scien
STREET: 9410 Key West Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGAT 1252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGAAAACTTGGGATGCTAATGCGAATGAAAATGCAGCTTGGCTTGCAAATCCGCATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAA 1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCATTCCCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTTGGAA 1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATGCGCACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCGTTCATGTGATGTGCCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATGGAGAAACTATCGATCAGCTACGTAAAATTGTTAATAACTTAACGAAAGGTATTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGGTGAGGATGAĆATGGGACGCGTGTATGGTGTTCAGGGTAGAGCCTTGGGCTAAGCCT 1192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATCCTTTTTCCGTCTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TACCCGTTTTCAGTCTAAT 1691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTTGGGTCACGATGATTTTTAAAGTCGTTGGCTATCAATCCCACGAACCAATTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTTTCCCATTACCAMAATTAGAAATTAATCCAGATATAAAAACGCTTGAAGATTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATGCGCATATTTATGAAGATCAGCTTGAGTTAATGCGTGACGTACAACTTAAACGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTAGCACTTATGGCTCAGATCACGGGCAAAAAAAGCCGGCAAGGCATATCATAAAATTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTTGTATGCATACGCATACTTTTTCTCTTGTGGGCGATACTTTACATCTTACTAGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTTGCATGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACT 1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATAGAGGAGAGTTTTAACTTTTTTAACCCTGGGGAATTTGATCTTGGTTGTCTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGC 1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGAGGCGTTGATGATATGGGGCGCGTATATGGTGTGCAAGGCAGAGCATGGCGTAAGCCT
                                                                                                                                                                                                                                                                                                   CITY: Rockville,
                                                                                                                                                                                                                                                                                                                                                                             Mark U...
Owen White
Owen Whate
Owen White
O
                                                                                                                                                                                                                                                                                                                                                 Genome Sciences,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              959766
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rd
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fragments
```

959567 1492 959507 1432 959447 959387

959327

959267

959207

959627

```
멍
                                                                                                                                                                              ঠ
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 1830121 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ ID NO:
US-09-643-990A-1
밁
                                 S
                                                                      밁
                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 66.7
Matches 1134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 310-309-8439 INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1995-06-07
APPLICATION NUMBER: 08/426,787
FILING DATE: 1995-04-21
ATTORNEY/AGENT INFORMATION:
NAME: Kenley K. Hoover
REGISTRATION NUMBER: 40,302
REFERENCE/DOCKET NUMBER: PB186P1C1
TELECOMMUNICATION INFORMATION:
TELECHONE: 301-610-5790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        958086 ATAAGGAAAATTATGAATTCAAATTATTTACTTCCCCCACTTTGATCCGAGTATTTTT
                                                                                                                                                 958626
                                                                                                                                                                                                                           958566
                                                                                                                                                                                                                                                                                                    958506
                                                                                                                                                                                                                                                                                                                                                                             958446
                                                                                                                                                                                                                                                                                                                                                                                                                                                       958386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                958326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            958266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     958206 GTTTTTGCACGTTGGCTTGCGGTTCGCCGTGCTAATCGCCCAAATAGCGGTTGGACAGTA 958265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              958146 ACGCTTGGCGATAGTAATATCGGCTTACGTTGGTATGGCTTGATGTACCTTTTAGGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                 653
                                                                                                                                                                                      533
                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 TCGATCGGC-----CCTCTAGCGGTGCGCTGGTATGGCTTTGATGTATTTGGTGGGTTTC 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 AGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTTCCCCAATATTGACCCCCGTATTGTTT
                       GGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTT
                                                                                                                                                                                                                                                                                                  ATTCCGTTTGGTTTAGGCTTAGGCAGAATTGGTAATTTCATTAATCTTGAACTATGGGGA 958565
                                                                                                                                                                                                                                                                                                                            GTGCCATTCGGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGA 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTTGGGAAGGTGGAATGTCGTTCCACGGTGGCTTAATTGGTGTAATTGTTGCTATGATT 958445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGTGTAGTGATCGGTGGCCGAGTT 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGT 175
                                                                                                                                                                                    CATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAAT
                                                                                                                                                                                                                         CGCGAAACGAATGTGCCTTGGGCAATGATTTTCCCGAATGATCCTCTTTTACTGCCTCGT
                                                                                                                                                                                                                                                 CGAGTAACGGATGTGCCTTGGGCCTTTTGTATTCCCTAATGGTGGCC---CACTGCCGCGC
                                                                                                                                                                                                                                                                                                                                                                             TGGACATCTTATTCTCAAAAACGTAATTTTTGGCAAACGGCTGATTTTGTTGCGCCTTTG
GGCGTCTTCCGTTTTATTGTGGGAATATGTGCGTGAACCTGAAG-----TTGAAAATTTC
                                                                                                      TGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTTAGCTGGATAC
                                                                                                                                                 CATCCATCACAACTTTATGAAGCCTTTTTAGAAGGCCTGGTGTTGTTTACGATTCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATCAAGTTGATAGCTTACTTTTCAACGGTTTTATGGGGGGTGTTTATTGGCGGACGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                TGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCTTTA 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 08/487,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 744.2; DB 4;
Pred. No. 1.7e-245;
0; Mismatches 538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1830121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           355
                                     712
                                                                                                           652
                                                                                                                                                 958685
                                                                                                                                                                                                                           958625
                                                                                                                                                                                                                                                             532
                                                                                                                                                                                                                                                                                                                                                                             958505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          958325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                958205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        958145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                        958745
```

	73 TACCCGTTTTCAGTCTAAT 1691	Qy 167 Db 95974	п 0
CAGTTCCACGATCCTATTCAA 1672 	13 ACTTGGGTCACTTTGGATGI	Qy 161 Db 95968	υρ
AAAACACTGCAGGATTTGGAA 1612 AAAACGCTTGAAGATTTGGAA 959687	53 28	Qy 155 Db 95962	u o
GATGTGCAGCTAAAACGTGAG 1552 GACGTACAACTTAAACGCGAG 959627		Qy 1493 Db 959568	U 0
TTGGCGTATCACAAGATCGTC 1492 AAGGCATATCATAAAATTGTG 959567	33 CTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTC	Qy 1433 Db 959508	U 0
ATGGTGCAGGTTTATGTGTTC 1432	73 CAGCGTTCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTC	Qy 1373 Db 959448	n o
ACCTTGTATCTCAACAGTACT 1372 		Qy 1313 Db 959388	u 0
TTTCACATGGGGTGTTTGCGC 1312	53 GACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGC	Qy 1253 Db 959328	п o
GATTTGAGCCGTGGCGTTGAT 1252 	93 GATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGAT 	Qy 1193 Db 959268	n o
GGTAGAGCTTGGGCTAAGCCT 1192 GGAGAGCATGGCGTAAGCCT 959267	33 AAAGGTGAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCT	Oy 1133 Db 959208	п O
TGGCTCAACAATCCTTACCGT 1132 TGGCTTGCAAATCCGCATCGT 959207	73 ACCAAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGT 	Qy 1073 Db 959148	n o
GCGGATTTTCGCCAATTAGGT 1072 GCTGATTTCCGCGCACTTGGC 959147	13 GCCGAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGT	Qy 1013 Db 959088	n o
AGTITTTGGAAAGCTGCCGTA 1012 AGTTATTGGAAAGCGGCGATT 959087	153 GTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTA	Qy 953 Db 959028	u 0
AATGCCGATTTGACCTACGAT 952 AATGCAGATTTAGAATATGAT 959027	93 GAAAATGAACGAACGGGCAAGCGTTGTTGACTGTGATTAATGCCGATTTGACCTACGAT 	Qy 893 Db 958968	u 0
GTCGATCAAGGTGTTTGGGTT 892 	33 AGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTIGGGTT	Оу 833 Db 958908	п о
CGTGTAGCAGCAAAATAGGGT 832 aGTGCGGTCATAAAATAGGAG 958907	73 ATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGGAGCAAAATAGGGT	Qy 773 Db 958860	п . О
ATGGTGATCATCGGTATTTTG 772	713 GGTGGCTTCATTTCAATGGGGCAAATCCTCCTTACCTATGGTGATCATCGGTATTTTG	Qy 71 Db 95880	U 0

RESULT 3
US-09-543-681A-2282
; Sequence 2282, Application US/09543681A
; Patent No. 6605709

```
GENERAL INFORMATION:

APPLICANT: GARY BRETON

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO F

TITLE OF INVENTION: DIAGNOSTICS AND THERAPEUTICS

FILE REFERENCE: 2709.1002-001

CURRENT FILING DATE: 2000-04-05

PRIOR APPLICATION NUMBER: US 60/128,706

PRIOR APPLICATION NUMBER: US 60/128,706

PRIOR FILING DATE: 1999-04-09

NUMBER OF SEQ ID NOS: 8344

SEQ ID NO 2282

LENGTH: 873

TYPE: DAM:
Protecus mirabilis

US-09-543-681A-2282
                                                                   Ş
                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                  밁
                                                                                                              밁
                                                                                                                                             Š
                                                                                                                                                                                    В
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                            1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1060
 1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1240
                                                                                                                                                                                                                                                                543
                                                                                                                                                                                                                                                                                                                                                                                                                 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                        603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  820
                                    723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       583;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCAAAATAGGGTAGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCA
GCAGGATTTGGAAACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCA 1659
                                    ACTAAAAAGAGAGCCATTGCCATTACCTAAGCTACATATTAATCCAAACATTAAGACATT
                                                                     GCTAAAACGTGAGCCATTCCCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACT
                                                                                                          CCATAAGATAGTTAATGCTCACATTTATGAGAACCAATTACCTCTGATGCGTGATGTTCA
                                                                                                                                  TCACAAGATCGTCAATGCGCACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCA
                                                                                                                                                                                        ATGCTTTGTATTAGTTAGCGCTGGTGGCTCAAATCACAGGGCATAAACCAGGTAAAGCATT
                                                                                                                                                                                                                                                                                       TCTCAACAGTACTCAGCGTTCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCA
                                                                                                                                                                                                                                                                                                                                       AGGGTGTTTACGTCCATGCATGCATACACATACTTTTTCATTGCTCGGTGACAGGCTTTA
                                                                                                                                                                                                                                                                                                                                                               GGGGTGTTTGCGCCCTTGCATGTACAGCCATCATTTTTCATTGCTGGGGGGATACCTTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                 TAACGGTATTGACGATCGTGGTGAGATAGTCACTTTTTATAATCCCCGGAGAAACAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGTGGCGTTGATGACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGGGCTAAGCCTGATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TAATCCGCATCGTAAGGGTGAAGATGATATGGGCCGAGTCTATGGTGTTCAAGGACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAATCCTTACCGTAAAGGTGAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGCCAATTAGGTACCAAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAA 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAAAGCCGCGATTGCGGAACTATTAGGGTACTTACGTGGTTATGATAATGCAGCACAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAAGCTGCCGTAGCCGAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTGGAATATGATGTTGCCAATAACCAATTTCCACTCATAACAACGCGTAAAAGTTTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTGACCTACGATGTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGTGAATGGATAATAAACGGACAGGAACCCGTTGTTTAACGGTGATAAATGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGTGTTTGGGTTGAAAATGAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACAAAAAAGAGAGACTACATGAAGCAGTATCTGGCATTGTGTCAACGCATTATCGATGA
                                                                                                                                                                                                                         GGTTTATGTGTTCCTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTA 1479
                                                                                                                                                                                                                                                                  TTTAACCTCATATCAACGTAGCTGATGTCCCATTAGGGTTGAATTTTAATCAAATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGCAACGCCCTGATGGCTCGCACTTTGATCAATTACGTAAAGTGGTAGATAACTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGTGCTATTGGCTGTAATACGTGGAACGCGAATGCTAATGAAAATAGCGCATGGTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 410.8; DB 4;
Pred. No. 5.2e-132;
0; Mismatches 287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROTEUS
                                                                         1599
                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   999
                                                                                                                                                   1539
                                                                                                                                                                                        662
                                                                                                                                                                                                                                                                  602
                                                                                                                                                                                                                                                                                                     1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                              722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    879
                                    782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MIRABI:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: McKalenos, John J.
APPLICANT: Akerley, Brian J.
APPLICANT: Rubin, Eric J.
APPLICANT: Rubin, Eric J.
APPLICANT: Camilli, Andrew
TITLE OF INVENTION: SYSTEMATIC IDENTIFICATION OF ESS
TITLE OF INVENTION: GENES BY IN VITRO TRANSPOSON MUT
FILE REFERENCE: 00742/052002
CURRENT APPLICATION NUMBER: US/09/277,565
CURRENT APPLICATION NUMBER: 60/079,770
EARLIER APPLICATION TUMBER: 00/09/277,565
CHARLIER APPLICATION NUMBER: 00/09/277,565
MUMBER OF SEQ ID NOS: 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: FASTSEQ for Windows Version 3.0
SEQ ID NO 17
LENGTH: 807
TYPE: DNA
ORGANISM: Haemophilus influenzae
US-09-277-565-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                             В
                                                                 Ś
                                                                                                              밁
                                                                                                                                         Ş
                                                                                                                                                                                      밁
                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                뭉
                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 4
US-09-277-565-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 10.0%;
Best Local Similarity 65.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 17, Appli
Patent No. 6207384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    843
 618
                                                                         558
                                                                                                              494
                                                                                                                                                   501
                                                                                                                                                                                        434
                                                                                                                                                                                                                             441
                                                                                                                                                                                                                                                                  374
                                                                                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                                                                                                       314
                                                                                                                                                                                                                                                                                                                                                                            321
                                                                                                                                                                                                                                                                                                                                                                                                                   254
                                                                                                                                                                                                                                                                                                                                                                                                                                                        261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81 TGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATC 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGATGATATAGAAACTTGGGTCACGACAGATGACTTTAGTGTTGAAGGTTATCAGTGTCA
                                                                                                                                           TTGTATTCCCTAATGGTGGCC---CACTGCCGCGCCATCCTTCACAGCTTTATGAATTCG
                                                                                                                                                                                                                 GTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTGGGCTT 500
                                                                                                                                                                                                                                                                                     CCTTCTTTGGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGTTTTATGGGGGGTGTTTATTGGCGGACGTGTTGGCGATGTATTTTTCTATAATCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGAGCGGATCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCG
 TAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAAT 677
                                    TTTTAGAAGGCCTGGTGTTTACGATTCTGAATATTTTTATTAAAAAACCACGTCCAA
                                                                       ccrragaaggcgregrrcrgrrcrrarrcrraarrggrrarrggraaaccrcgrccgc
                                                                                                                                                                                        GAATTGGTAATTTCATTAATCTTGAACTATGGGGACGCGAAACGAATGTGCCTTGGGCAA
                                                                                                                                                                                                                                                                  ATTTTTGGCAAACGGCTGATTTTGTTGCGCCCTTTGATTCCGTTTGGTTTAGGTTTAGGCA
                                                                                                                                                                                                                                                                                                                                         ACGGTGGCTTAATTGGTGTAATTGTTGCTATGATTTGGACATCTTATTCTCAAAAACGTA
                                                                                                                                                                                                                                                                                                                                                                 ACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCA 380
                                                                                                                                                                                                                                                                                                                                                                                                                   ATCATTTCTTACAAGAACCACTTTATTTATTCCGCGTTTGGGAAGGTGGAATGTCGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCTGTTCCTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGTGCTAATCGCCCAAATAGCGGTTGGACAGTAGATCAAGTTGATAGCTTACTTTTCA 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAGGCGATAAAATACCCGTTCACGGTGTA 872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGATCCTATTCAATACCCGTTTTCAGTCTA 1689
                                                                                                              TGATTTTCCCGAATGATCCTCTTTTACTGCCTCGTCATCACACCAACTTTATGAAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/09277565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 292.2; DE Pred. No. 1e-90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ESSENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
```

373

433

617

320

253

313

Ś

밁

밁 Ś 밁

```
; PRIOR APPLICATION NUMBER: US 60; PRIOR FILING DATE: 1998-07-27; NUMBER OF SEQ ID NOS: 33142; SEQ ID NO 15221; SEQ ID NO 15221; LENGTH: 810; TYPE: DNA; ORGANISM: Pseudomonas aeruginos US-09-252-991A-15221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 5
US-09-252-991A-15221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 15221, Application Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION: APPLICANT: Marc J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE:
                                                                                                                                                   373
                                                                                                                                                                                      389
                                                                                                                                                                                                                            313
                                                                                                                                                                                                                                                               329
493
                                   509
                                                                      433
                                                                                                            449
                                                                                                                                                                                                                                                                                                    253
                                                                                                                                                                                                                                                                                                                                          269
                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                                                                                                                                                                                                                                          133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      473;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29
                                                                                                                                                 CAGCTGATGGACTTCATCGCCCCGCTGGTGCCCATCGGCCTGGGCCCCGGGCGCATCGGC
                                                                                                                                                                                    GGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGT
                                                                                                                                                                                                                                                                                                                            CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCGCGCGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGACGTATCCCCAGATCGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGG
                               ccraargeregeceacrecegecearcerreacaecrrrargaarregecrragaaeec
                                                                                                                                                                                                                                                               TTATTGGGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCCAACGCACCTTCTTT 388
                                                                                                                                                                                                                                                                                                    ATCGCCAACCCGACGCTGATCTTCGAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                  TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTTGGTCTTACAAGCGC 796
 CCCAACGGCGGCCCGCCGCGCATCCCTCGCAGCTGTACCAGTTCGCCCTGGAAGGC
                                                                        AACTTCATCAACTCGGAACTGTGGGGCAAGGTCAGCGATGTGCCCTGGGCCATGGTCTTC
                                                                                                            AACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTGGGCTTTTGTATTC
                                                                                                                                                                                                                              CTGCTCGGCGTGATGCTGGCGGTCTGGTGGTTCGGCAAGCGCCATGGCAAGAGCTTCTTC
                                                                                                                                                                                                                                                                                                                                                                               TGCGGCGTGATCCTCGGTGGCCGCCTGGGCTACGTGCTTCTACAACCTGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCTTTGCCTGCCGATGATTATTGGTGGTGCTTTCATTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTGCGTGAACCTGAAG-----TTGAAAATTTCTTTGGGATTATTACACGAGGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCAATGGGGCAAA 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGCTTCTGTTGCAGGTTTATTCTTAATTGGTTATGGCGTCTTCCGTTTTATTGTGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ON: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US 60/094,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/09252991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 282.4; DB 4;
Pred. No. 2.6e-87;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TEGECTTATTCACEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    占
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         786
                                                                                                                                                                                      448
                                 895
                                                                        492
                                                                                                              508
                                                                                                                                                   432
                                                                                                                                                                                                                            372
                                                                                                                                                                                                                                                                                                    312
                                                                                                                                                                                                                                                                                                                                          328
                                                                                                                                                                                                                                                                                                                                                                               252
                                                                                                                                                                                                                                                                                                                                                                                                                    268
                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             673
                                                                  á
                                                                                                                                               S
                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                              맑
                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
US-09-252-991A-15232/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-15232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 15232
LENGTH: 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 15232, Application Patent No. 6551795
GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 473;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Marc J. I
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US (
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
449
                                   585
                                                                        389
                                                                                                                                                   329
                                                                                                                                                                                        705
                                                                                                                                                                                                                                                                                                                                          825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           569
                                                                                                                                                                                                                            269
                                                                                                                                                                                                                                                                 765
                                                                                                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                                                                                                                                                               149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    629
                                                                                                                                                                                                                                                                                                                                                                                                                                                          89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGGTCTTACAAGCGCG
AACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTGGGCTTTTGTATTC
                                   CAGCTGATGGACTTCATCGCCCCGCTGGTGCCCATCGGCCTGGGCGCCCGGGCGCATCGGC
                                                                                                                                                                                        ATCGCCAACCCGACGCTGATCTTCGAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGC
                                                                                                                                                                                                              CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                                                                                                                                                          AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCC
                                                                                                                                                                                                                                                                                                                                                                           GATCGCGCGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTACCGATGGTGCTGGCCGGCATTGCCCTGATGGTCTGGGCCTACCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGCGCTGTTCGTCATCCTCTGGCTGTTCACCCGCAAGCCACGGCCGACCGCCTCGGTC
                                                                      GGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGT
                                                                                                              CTGCTCGGCGTGATGCTGGCGGCTCTGGTGGTTCGGCAAGCGCCCATGGCAAGAGCTTCTTC
                                                                                                                                         TTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGCTAAAAAACCAACGCACCTTCTTT
                                                                                                                                                                                                                                                                                         TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                  CTGACGTATCCCCAGATCGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGATGCCCAGCTCGGCTACCTCGCCTGGGGTTGGCTGACCATGGGCCCAGGTGCTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAGATGCTCAGTTGGG---TCTGTTTGGTGGCTTCATTTCAATGGGGCAAATCCTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTA
                                                                                                                                                                                                                                                                   TGCGGCGTGATCCTCGGTGGCCGCCTGGGCTACGTGCTGCTACAACCTGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCGGCCTGTTCGTGCTGCTACGGGATCTTCCGCTTCGTTGTCGAATTCGTCCGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rubenfield et al.
NUCLEIC ACID AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AERUGINOSA FOR DIAGNOSTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 60/074,788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US 60/094,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/09252991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 282.4; DB Pred. No. 3e-87; O; Mismatches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                        448
508
                                                                                                              586
                                                                                                                                                   388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 628
                                                                                                                                                                                        646
                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                   706
                                                                                                                                                                                                                                                                                                    268
                                                                                                                                                                                                                                                                                                                                          766
                                                                                                                                                                                                                                                                                                                                                                               208
                                                                                                                                                                                                                                                                                                                                                                                                                    826
                                                                                                                                                                                                                                                                                                                                                                                                                                                          148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۳.
```

밁 ઇ Ś 밁 ঠ 밁 Ś 밁 Ś . 명 S 밁 δ 밁 8 문 Ś

밁

```
á
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 7
US-09-252-991A-15227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 15227
LENGTH: 1434
TYPE: DNA
ORGANISM: Pseudomonas aeruginosa
S-09-252-991A-15227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 15227, Application US/09252991A Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AMINO ACID SEQUENCES RELATING 'TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR FILING DATE: 1999-02-18
PRIOR PHIOR DATE: 1998-07-18
PRIOR PHIOR DATE: 1998-07-18
PRIOR PHIOR DATE: 1998-07-27
NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER: US 60/094,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                 329
                                                                                                  899
                                                                                                                                                    269
                                                                                                                                                                                                     809
                                                                                                                                                                                                                                                       209
                                                                                                                                                                                                                                                                                                      548
                                                                                                                                                                                                                                                                                                                                                       149
                                                                                                                                                                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                525
  728
                                                                                                                                                                                                                                                                                                                                                                                                                                                       89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.7%;
Similarity 61.3%;
                                       TTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTT
                                                                                                     ATCGCCAACCCGACGCTGATCTTCGAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGC
                                                                                                                                  CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                     TGCGGCGTGATCCTCGGTGGCCGCCTGGGCTACGTGCTGTTCTACAACCTGGACGAGTAC
                                                                                                                                                                                                                                  TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                                                                                        AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCC
                                                                                                                                                                                                                                                                                                                                          GATCGCGCGGCAGTGGTTGGACGCTGAGCAGGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                      TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGACGTATCCCCAGATCGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        crigcagritric con a real contraction of the cont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTACCGATGGTGCTGGCCGGCATTGCCCCTGATGGTCTGGGCCTACCGCCGCG 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTACCTATGGTGATCATCGGTATTTTGATGATGGTTTTGGTCTTACAAGCGCG 797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGGATGCCCAGCTCGGCTACCTCGCCTGGGGTTGGCTGACCATGGGCCAGGTGCTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGATGCTCAGTTGGG----TCTGTTTGGTGGCTTCATTTCAATGGGGCAAATCCTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           тсседастеттттаестедатаседтасаттссесттссттетедалатасетссетвае
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GIGGTTCTGTTCTTATTCTTAATTGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCAACGGCGGCCGCTGCCGCGCATCCCTCGCAGCTGTACCAGTTCGCCCTGGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACTTCATCAACTCGGAACTGTGGGGCCAAGGTCAGCGATGTGCCCCTGGGGCCATGGTCTTC
CTGCTCGGCGTGATGCTGGCGGTCTGGTGGTTCGGCAAGCGCCATGGCAAGAGCTTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCGGCCTGTTCGTGCTGTGCTACGGGATCTTCCGCTTCGTTGTCGAATTCGTCCGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 282.4; DB 4;
Pred. No. 4.1e-87;
0; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               568
                                                    388
                                                                                                                                                                                                                                                                                                        607
                                                                                                                                                                                                                                                                                                                                                                                                                                                       148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   466
                                                                                                  727
                                                                                                                                                    328
                                                                                                                                                                                                     667
                                                                                                                                                                                                                                                                                                                                                                                                         547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               226
  787
                                                                                                                                                                                                                                                       268
                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                    Ś
                                                                                                  밁
                                                                                                                                               S
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; TYPE: DNA; ORGANISM: Proteus mirabilis US-09-543-681A-2365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-543-681A-2365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQ ID NOS: 8344
SEQ ID NO 2365
LENGTH: 891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2365, Appli
Patent No. 6605709
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: NUCLEIC ACID AND AMINO TITLE OF INVENTION: DIAGNOSTICS AND THERAF FILE REFERENCE: 2709.1002-001
CURRENT APPLICATION NUMBER: US/09/543,681A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/128,706
PRIOR FILING DATE: 1999-04-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: GARY BRETON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 848
  259
                                                 266
                                                                                                  199
                                                                                                                                                    206
                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                       146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    788 CAGCTGATGGÁCTTCATCGCCCCGCTGGTGCCCATCGGCCTGGGCGCCGGGCGCATCGGC
                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                          86
                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                          26
                                                                                                                                                                                                                                                                                                                                                                                                                                          TATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGACGTATCGGT 448
                                                                                                                                       TTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTTGATCTG
                                                                                                                                                                                                                                          GCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGC
                                                                                                                                                                                                                                                                                                                                     TGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAACCTCGGTCCGCTAGGCAGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGC
                               TICCITGCTGACCCTCTTTATTTATTCAAAGTGTGGGACTGGCGGCATGTCCTTCCACGGC 325
                                                                                                                                                                                                        GCGGCAAAAACCTAACAGTGGTTGGCAAAAAAGTGAAGTCGAAACATTACTTTATGTAGGG
                                                                                                                                                                                                                                                                                                           TGGTACGGCATGATGTATTTGATTGGATTTGTGTTTTGCATTATGGCTAGCAAACCGCAGA
                                                                                                                                                                                                                                                                                                                                                                                                           TACCTTAAATTTCCAGAAATCGATCCAGTTATGTTTTCTATCGGGCCAGTATCTTTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTACCGATGGTGCTGGCCGGCATTGCCCTGATGGTCTGGGCCTACCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGGTCTTACAAGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAGATGCTCAGTTGGG---TCTGTTTGGTGGCTTCATTTCAATGGGGCAAATCCTCTCC 745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGCGCTGTTCGTCATCCTCTGGCTGTTCACCCGCAAGCCACGGCCGACCGCCTCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCAACGGCGGCCGCGCGGCATCCCTCGCAGCTGTACCAGTTCGCCCTGGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTTCATCAACTCGGAACTGTGGGGCAAGGTCAGCGATGTGCCCTGGGCCATGGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTGGGCTTTTGTATTC
  TTTTAGATAATCCACTTTACCTATTTAAAGTCTGGGATGGCGGAATGTCCTTCCACGGT
                                                                                                     TTTGTGGGCGTGTTTATTGGTGGGCGTCTAGGATATGTTTTATTCTATAACTTACCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCGGCCTGTTCGTGCTGCTACGGGATCTTCCGCTTCGTTGTCGAATTCGTCCGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCGGACTGTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09543681A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 265.8; DB 4;
Pred. No. 1.7e-81;
0; Mismatches 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABIL AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            797
                                                                                                                                                                                                                                                                                                                                                            145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 847
                                                                                                                                                                                                                                                                                                           138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     568
                                                                                                                                                                                                                                                                                                                                                                                                           78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     508
                                                                                                                                                         265
                                                                                                                                                                                                           198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    907
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
 밁
                                                            밁
                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 9
US-09-489-039A-2965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 श्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                  APPLICANT: Gary Breton et. al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING'
TITLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 2709.2004001
CURRENT APPLICATION NUMBER: US/09/489,039A
CURRENT FILING DATE: 2000-01-27
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR FILING DATE: 1999-01-29
NUMBER OF SEQ ID NOS: 14342
SEQ ID NO 2965
LENGTH: 879
TYPE: DNA
ORGANISM: Klebsiella pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Gary Br
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2965, Application US/09489039A Patent No. 6610836
                                                                                                                                          Query Match
Best Local
                                                                                                                         Matches
                                                                                                                                                                                          -09-489-039A-2965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        326
                                                                                                                         515;
 64
                           74
                                                                                            14
                                                                                                                                           Similarity
 GTCTCCCTCCACTGGTACGGTTTGATGTACCTGGTGGGCTTTGTCTTTTGCGATGTGGCTG
                               CTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTTCCTTTTTGCTATGTGGTTG
                                                                                            ATGCCTCAGGGTTATCTGCAGTTTCCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               G
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCAATGGGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGGGCAGTGTATCGGGGTTATTCTTAATTGGTTATGGTGCTTTCCGTATTATTGTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAACCTCGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTACCTATCATTCAGCAATACGGCGTATTGCCTCGCCACCCCATCGCAACTCTATGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTATTCCCAGGCTCCCGTGCAGAAGATCTACAGCTTGTCGCGCAAGATCCCACTACACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTAACTTTATTAATGGAGAGCTTTGGGGGGAGAGTCACCTTAGATACCCCGTGGGCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTAACTTTATGAATAGTGAACTTTGGGGACGAGTAAC---GGATGTGCCTTGGGCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCTTAATTGGGGTGATCTGCGCCATGATTTGGTTTGCTCGTCGCACTAAACGTCACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCCTAGAAGGCGTGGTATTATTTATTATTCTGAATATCTTTGTGCGCAAAAATCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTCAAGTCGCAGACTTTGCTTGCTCCATTAATCCCATTTGGTTTAGGTTTAGGACGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAACCAACGCACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTCTTTCCATTCCAATGATAATATTAGGCATTATCTTTATGGTGTGGGGCGTATCGTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGGTCTTACAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCTTCCGCCAACCTGATGCGCAATTAGGTTTATTTAGCGGTATCA----GCATGGGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTGGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGACGTATC
                                                                                                                           Conservative
                                                                                                                                        8.8%;
59.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -TAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTC
                                                                                                                           0
                                                                                                                                        Score 256.8; DB 4;
Pred. No. 2.3e-78;
                                                                                                                           Mismatches
                                                                                                                           282;
                                                                                                                                                       Length
                                                                                                                           Indels
                                                                                                                           69;
                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                  덩
                                                                                                                                                                                                                                                                                                                                                                                  KLEBSIELLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  558
                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        385
                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              510
                                                                                                                                                                                                                                                                    RESULT 10
US-09-328-352-3810
                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                               US-09-328-352-3810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                        APPLICANT: Gary L. Breton et al.

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO ACINETOBACTER
TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
FILE REPERENCE: GTC99-03PA
CURRENT APPLICATION NUMBER: US/09/328,352
CURRENT FILING DATE: 1999-06-04
NUMBER OF SEQ ID NOS: 8252
SEQ ID NO 3810
LENGTH: 834
                                                                                                                                                                                                                    Sequence 3810, Application US/09328352 Patent No. 6562958 GENERAL INFORMATION:
Query Match
                                            TYPE: DNA ORGANISM: Acinetobacter
                                                                                                                                                                                                                                                                                                                                    844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                 785
                                                                                                                                                                                                                                                                                                                                                                                                 784
                                                                                                                                                                                                                                                                                                                                                                                                                                725
                                                                                                                                                                                                                                                                                                                                                                                                                                                               724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        134
                                                                                                                                                                                                                                                                                                                                    GCTTACCGCCACCGTCCGCAGCCACA
                                                                                                                                                                                                                                                                                                                                                                                                  AGCATGGGGCAGATTCTTTCGATCCCGATGGTGCTTGCGGGTATCATTATGATGGTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                              TCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACTACACGATGATTTTCCCGGGGCTCCCGTGCCGAAGACCTGGCGCTGCTGCCGACGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGACGAGTA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAACGCACCTTCTTCCAGGTCTCCGATTTTATCGCGCCGCTGATCCCGTTTGGTCTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAACGCACCTTCTTTGGTGGCCGATTTTGTTTGCCCCTTTAGTGCCCATTCGGTTTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĠĊĊĄCCĊĠŢĊĠĠĠĊĠĄĄŢĊĠŢĊĊĠĠĠĊĄĠĊĠĠĊĬĠĠĄĊĠĄĄĄĄĄĬŢĠĄĄĠĬĠĠĄĄĄĄČĊŤĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCAATCGCCGAGCGGATCGCGGGGGGGGTGGTTGGACGCGTGAGCAAGTCTCTGACTTG
                                                                                                                                                                                                                                                                                                                                                                 TCTTACAAGCGCGGTTTGTATCAAGA 810
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCGTGGAATTCTTCCGCCAGCCCGACGCCCAGTTCACCGGCGGCTGGGTGCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTT----GGGTCTGTTTGGTGGCTTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTCGTCCGCTAGGCAGCGTATCCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACGAGCTGGCGCTGGAAGGCGTGGTACTGTTCCTGATCCTCAACCTGTTTATCCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCCCATCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGCGTCTGGGCAACTTTATCAACGGCGAGCTGTGGGGGCCGCGTAGACCCCGAGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGTTCCACGGCGGCCTGATCGGCGTGATCCTGGTGATGATTATCTTCGCCAGACGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACCTGCCGGTATTTCTTGCCGATCCGCTGTATCTGTTCCGCGTCTGGGACGGCGGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTTGATCTGTTCCTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCTACGCGGCTTCCTCGGCGTCTTCCTGGGCGGCCGTATCGGCTACGTGCTGTTTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTAC
                                               baumannii
 . 28;
 Score
 208
                                                                                                                                                                                                                                                                                                                                     869
 <u>.</u>6
 DΒ
 4;
Length
 834;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423
                                                                                                                                                                                                                                                                                                                                                                                                  843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         193
                                                                                                                                                                                                                                                                                                                                                                                                                                  784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             253
```

Local

58.0%;

```
B
                                                                                                                                                                                                                               RESULT 11
US-09-790-988-1
                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
        APPLICANT: HATTORI, MASAHIRA
APPLICANT: SAKAKI, YOSHIYUKI
TITLE OF INVENTION: GENOME DNA OF BACTERIAL
FILE REFERENCE: 081356/0159
CURRENT APPLICATION NUMBER: US/09/790,988
CURRENT FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: JP2000-107160
PRIOR FILING DATE: 2000-04-07
NUMBER OF EQ ID NOS: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loc
Matches
                                                                                                                                                                                                Sequence 1, Application US/09790988 Patent No. 6632935
                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                  APPLICANT: SHIGENOBU, SHUJI APPLICANT: WATANABE, HIDEMI
                                                                                                                                                                                                                                                                                                                                                         676
                                                                                                                                                                                                                                                                                                                                                                                      677
                                                                                                                                                                                                                                                                                                                                                                                                                   616
                                                                                                                                                                                                                                                                                                                                                                                                                                                 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        209
                                                                                                                                                                                                                                                                                                                          734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         al Similarity 58.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29
PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                       CAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGGTCTTACAA
                                                                                                                                                                                                                                                                                                                                                         TTCTTCCGTCAGCCGGATGCCGACCAAGGTTTCATCTTGTTTTGGCTGGATGACCAAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAACCTCGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ÄÄČTTTÄTTGGCGĞAĞÄGTTATATĞĞTČĞTGCGGTCACÄĞATCČĞAÄTTATCCATTCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGACACTCGÁCTTTGTTGCCCCCTTGTGTACCGACAGGCTTAATGTTCGGACGTÁTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGACGTATCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCTTAGGCGTCATGATCGCAATGCTATTCTGGTGTAAAAAATATCAAAAAACATGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTATIGGGTGIGATCACCGCCATGTICTGGTAIGCGCGTAAAAACCAACGCACCTICTTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTGAAAACCCAATCTGGTTATTCCAAGTCTGGACAGGTGGTATGAGCTTCCACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTAGGTGTTGTACTCGGCGGACGTATCGGCTATGTGCTTTTCTATGAGTTTGATAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAACA---GCGTGATGGCTGGACATCGGACATGGTTTTCCGATCTGGTGTTTTACGGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATCGCGCGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGACCTATCCTAATATCGATCCGGTCGCAATACATCTAGGACCTCTTCAAGTCCATTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGG
                                                                                                                                                                                                                                                                                            CAAATCCTCACCGTTCCAATGCTACTGATAGGCCTTTGGATGATGTGGTATGCCTACCA
                                                                                                                                                                                                                                                                                                                                                                                    TACGTCCGTGAGCCAGATGCTCAGTTGGGT----CTGTTTGGTGGCTTCATTTCAATGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                    CGTATGGCTGTATCTGCCCTATTTTTAATGGGTTATGGTGTTGCACGCTTTGTGATGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                CTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTTGCGAAGGACTATTACTCTTTATTATTTTGTGGTGGTTTAGCTCAAAACCACGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGATTTTCCCAACCGATCCATTACATCTGGTTCGTCACCCTTCTCAAATCTACCAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITGIATICCCIA---AIGGIGGCCCACIGCCGCGCCATCCITCACAGCITIAIGAATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTTTATGAATAGTGAACTTTGGGGACG-----AGTAACGGATGTGCCTTGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 1.4e-61;
0; Mismatches 309;
                                                                                                      BACTERIAL
                                                                                                        SYMBIONT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                        ဝှု
                                                                                                        APHIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                             794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                148
                                                                                                                                                                                                                                                                                                                                                         735
                                                                                                                                                                                                                                                                                                                                                                                    733
                                                                                                                                                                                                                                                                                                                                                                                                                    675
                                                                                                                                                                                                                                                                                                                                                                                                                                                   676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             78
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                              S
                                                                                                                                밁
                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                        묽
                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-790-988-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; SEQ ID NO 1
; LENGTH: 640681
; TYPE: DNA
; ORGANISM: Buchnera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 5.2
Best Local Similarity 52.6
Matches 432; Conservative
                                                                                                                                                                                                                                                                           479964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    479844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               479724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           479604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           479424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           479304
                                                            749
                                                                                                                                                                                                    689
                                                                                                                                                                                                                                                                                                                                            629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCATGCATCGGAGGAAGAATAGGATATATTATTTTTTATAATTTTTCATATTATTCTCAA 479543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGATTTTGTTGCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGACGTATCGGTAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATATGTTATCTGTATTTTATATATGGGAAGGAGGCATGTCATTTCATGGAGGATTAATA 479603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACCCTCTTTATTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTG 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCCTAAATTAAATCCTATAATTTTTACGATTGGTCCTGTATCTGCTCGCTGGTATGGT
                                                                                                                                    CCAGATCCACAAATAGGACTATTAAAAAAATATTACTATGGGACAAATATTATCACTT
                                                                                                                                                                                                                                                                        rccegacrerrrageregaracegracarrccerrreregaaracerccereae
                                                                                                                                                                                                                                                                                                                                                                                                               ATTCTTCTGTTTTTATAATTTATTTTTTTTCGAAAAAAGATAGACCAACAGGTAGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGTTCTGTTATTCTTAATTGGTTATTGGTAAACCTCGTCCGCTAGGCAGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATGGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTAATAGTGAACTATGGGGTCGTGTATCACCCAATTTTTCATATGCAATGATTTTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGAATAGTGAACTTTGGGGACGACT---AACGGATGTGCCTTGGGCTTTTGTATTCCCT 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTGATTTCATCACTCCACTAATACCTTTTGGTTTAGGCGCTGGTAGAATAGGAAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ĠĠĪĠCTĀŢŖĀŢĊĠŢĊĀŢĠŢĊGĨAŢŢŢŢŢŢĊŢŢŢĨŔŖĀŢŖŢŖŔŶŔŖŶŖĸŖŦŢŦŖĠŖŖŖŦŖ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGT 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTATGTATGTATAAGTTTTTTATTTGCTATGTGGTATGGAAAAAAGTGCAGTATTAAA 479423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rrgargrarrregregerrrecrrrregerargregregecaaregecgageggarege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGC
CCTATGATTATTGCTGGATTAATTATTATGTATAAATCTTA
                                                         CCTATGGTGATCATCGGTATTTTGATGATGGTTTTGGTCTTA
                                                                                                                                                                                                    ccacarecreacinescricistrescripts are contracted as a contract contract of the c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATTCTCAAAATCAAGATTTAAAAGAAATAAAAAAATATCCCGAATTACAACTATTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCCACTGCCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGC 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 152.2; DB 4;
Pred. No. 1.2e-39;
0; Mismatches 323;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      640681;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94
                                                                                                                                                                                                                                                                                                                                                                                                                   479963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           479723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                       480083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
```

RESULT 12
US-09-540-236-663
; Sequence 663, Application
; Patent No. 6673910
; GENERAL INFORMATION:

US/09540236

APPLICANT: Gary L.

Breton

et

```
US-09-596-002-35; Sequence 35, Application US/09596002; Patent No. 6632636
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                               RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: M.catarrhalis
US-09-540-236-663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TITLE OF INVENTION: FOR DIAGNOSTICS AND THERAPEUTICS FILE REFERENCE: 2709.2005-001
CURRENT APPLICATION NUMBER: US/09/540,236
CURRENT FILING DATE: 2000-04-04
NUMBER OF SEQ ID NOS: 3840
SEQ ID NO 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 4.9
Best Local Similarity 59.4
Matches 263; Conservative
                                                                                                SOFTWARE:
SEQ ID NO 35
                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                   TITLE OF INVENTION: NUCLEOTIDE SEQUENCES PILE REFERENCE: PM-0008-4 US CURRENT APPLICATION NUMBER: US/09/596,002 CURRENT FILING DATE: 2000-06-16
                                                                                                                                        PRIOR APPLICATION NUMBER: PRIOR FILING DATE: 1999-
                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                           APPLICANT:
NAME/KEY: misc_feature
OTHER INFORMATION: Incyte template ID
PUBLICATION INFORMATION:
                                                                                                                            NUMBER OF SEQ ID NOS:
                                           ORGANISM: M. catarrhalis FEATURE:
                                                                     TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
                                                                                    LENGTH: 96109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 891
                                                                                                                                                                                                                                                                                                                                                                                                     458
                                                                                                                                                                                                                                                                                                                                                                                                                                   385
                                                                                                                                                                                                                                                                                                                                                                                                                                                              398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38 CCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AATAGTGAACTTTGGGGACGAGT 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTTAGGTGGCCGTATTGGCTATGTACTTTTATACAATTTTGGTGAGCTGATTGCTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTTGATCTGTTCCTTGCTGAC
                                                                                                                                                                                                                                                                                                                                                                            AATGGCGAGCTTTGGGGACGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                   GATTTTATCGCACCCTGTGTACCAACAGGCTTATTTTTTGGGCGAATTGGGAATTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGTTGCCTTGCCATGTGGTATTTTGCACATAAATATAAAAAAAGCACCCTTTGCGGTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTTTATATCTTTTCGAGTATGGGAAGGGGGCATGAGTTTTCATGGTGGATTTGTGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGCCTTATTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGTACTTATTTGCTTTTTGTGGTGGCCTATTTTTTTGGCATGGGTGCGTACCAA---ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACAGATTAACCCTGTTGCTTTAGACTTGGGCATGATAGAGCTGCATTGGTATGGTTTG
                                                                                                                                                                                                                             Patterson,
Berg, Kim,
                                                                                                               PERL
                                                                                                                                                                                                                                                        Lagace,
                                                                                                                                           1999-06-18
                                                                                                               Program
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.98;
                                                                                                                                                                                                                                           Chandra
                                                                                                                                                                                                                                                           Robert,
                                                                                                                                                       60/140,121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 143.8; DB 4
Pred. No. 5.4e-39;
0; Mismatches 177
                                                                                                                                                                                                                                                                                                                                                                           467
              ŏ.
                                                                                                                                                                                                                OF MORAXELLA CATARRHALIS GENOME
              6632636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     891;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TO MORAXELLA CATAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                              457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                        Ś
                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
US-09-252-991A-15244/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                    US-09-252-991A-15244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-596-002-35
                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Marc J.
                                                                                                                                                                                                                                                                                                                                                                                                                          Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                              Matches 196;
                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      51307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                218
              313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                         89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     262;
                                                                                                  29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98
```

```
51190 ATGTACTTATTTGCTTTTTGTGGTGGCCTATTTTTTGGCATGGGTGCGTACCAA---ATCC 51246
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTTTAGGTGGCCGTATTGGCTATGTACTTTTATACAATTTTGGTGAGCTGATTGCTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cccaatatreaccccetatrerrrrcearceeccrcraeceerececreerareecrre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTGCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTA 217
AATGGCGAGCTTTGGGGACGAAT 51569
                                                       AATAGTGAACTTTGGGGACGAGT 480
                                                                                                                                                               GATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATG 457
                                                                                                                                                                                                                       GTGTTGCCTTGCCATGTTGTTTTGCACATAAATATAAAAAAGCACCCTTTACGGTACTG
                                                                                                                                                                                                                                                                              GTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCC
                                                                                                                                                                                                                                                                                                                                     CCTTTATATCTTTTCGAGTATGGGGAAGGGGGCATGAGTTTTCATGGTGGATTTGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                         CCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGT 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUGUATUTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCACAGATTAACCCTGTTGCTTTAGACTTGGGCATGATAGAGCTGCATTGGTATGGTTTG 51189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.9%;
59.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 142.2; DB (
Pred. No. 8.3e-37)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
--
                                                                                                              51546
                                                                                                                                                                                                                                                                                 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
                                                                                                                                                                                                                                                                                                                                        51426
                                                                                                                                                                                                                                                                                                                                                                                                                                                   51366
```

PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 15244
LENGTH: 435
TYPE: DNA
ORGANISM: Pseudomonas aeruginosa FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18 APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR FILING DATE: 1998-02-18 TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG CTGACGTATCCCCAGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGG Conservative 4.0%; 0 Score 115; DB 4; Pred. No. 3.3e-29; Mismatches Length 435; Indels 0, Gaps 148 314 88 0

```
TELEX: 846169
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 2288 base pairs
TYPE: nucleic acid
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: CDNA
US-08-935-433-1
밁
                             á
                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 15
US-08-935-433-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/08935433 Patent No. 6319688
                                                                                                                                    Query Match 2.6%;
Best Local Similarity 56.0%;
Matches 164; Conservative
                                                                                                                                                                                                                                                                                                                                                TELEPAX: 610-407-0701
TELEX: 846160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/044
APPLICATION UNMBER: 60/044
FILING DATE: 28-APR-1997
ATTORNEY/AGENT INFORMATION:
NAME: PRESTIA, PAUL F
REGISTRATION NUMBER: 23,03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: FEILD, JOHN
TITLE OF INVENTION: A HUMAN SODIUM DEPENDENT PHOSPHATE
TITLE OF INVENTION: TRANSPORTER (IPT-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/935,433 FILING DATE: 23-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett,
COMPUTER: IBM Compat,
OPERATING SYSTEM: DO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: RATNER & PRESTIA
STREET: P.O. BOX 980
CITY: VALLEY FORGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: F
                           2536 ACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGAGAGT
                                                                   771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        253
711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19482
TCCTGCAAAAGCTCTTCTGAACTCACTCCGATCTCCCACCTGCATGAGCGCAACAATAGT
                                                                   CACCTCCACGGGCAAGAGCACCAACACGGACAGCCAGTTGAAGAAGTCATGGACAGTGGC
                                                                                                   CATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCTCGGCGTGATGCTGGCGGCGGTCTGGTGGT 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTATTGGGTGTGATCACCGCCATGTTCTGGT 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCGCCAACCCGACGCTGATCTTCGAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCGGCGTGATCCTCGGTGGCCGCCTGGGCTACGTGCTGTTCTACAACCTGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCC 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATCGCGCGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PΑ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/044,974
                                                                                                                                      ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                        GH-70006
                                                                                                                                      Score 75.4; DB 4;
Pred. No. 7.8e-15;
0; Mismatches 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.0
                                                                                                                                                                     Length 2288;
                                                                                                                                      Indels
                                                                                                                                      ω
                                                                                                                                      Gaps
                                2595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     268
652
                                                                 712
                                                                                                   2535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         208
                                                                                                                                      1;
```

Search completed: July 31, 2004, 17:02:39 Job time : 160 secs

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
Published Applications NA:*

1: /cgn2_6/ptodata/2/pubpna/US07 PUBCOMB.seq:*

2: /cgn2_6/ptodata/2/pubpna/US06 NEW PUB.seq:*

3: /cgn2_6/ptodata/2/pubpna/US06 NEW PUB.seq:*

4: /cgn2_6/ptodata/2/pubpna/US06_PUBCOMB.seq:*

4: /cgn2_6/ptodata/2/pubpna/US08 NEW PUB.seq:*

5: /cgn2_6/ptodata/2/pubpna/US08 NEW PUB.seq:*

6: /cgn2_6/ptodata/2/pubpna/US08 PUBCOMB.seq:*

7: /cgn2_6/ptodata/2/pubpna/US08 PUBCOMB.seq:*

9: /cgn2_6/ptodata/2/pubpna/US09 PUBCOMB.seq:*

10: /cgn2_6/ptodata/2/pubpna/US09 PUBCOMB.seq:*

11: /cgn2_6/ptodata/2/pubpna/US09 NEW PUB.seq:*

12: /cgn2_6/ptodata/2/pubpna/US09 NEW PUB.seq:*

13: /cgn2_6/ptodata/2/pubpna/US09 NEW PUB.seq:*

14: /cgn2_6/ptodata/2/pubpna/US09 NEW PUB.seq:*

15: /cgn2_6/ptodata/2/pubpna/US09 NEW PUB.seq:*

16: /cgn2_6/ptodata/2/pubpna/US08 PUBCOMB.seq:*

17: /cgn2_6/ptodata/2/pubpna/US10R_PUBCOMB.seq:*

18: /cgn2_6/ptodata/2/pubpna/US10R_PUBCOMB.seq:*

19: /cgn2_6/ptodata/2/pubpna/US10R_PUB.seq:*

19: /cgn2_6/ptodata/2/pubpna/US10R_PUB.seq:*

19: /cgn2_6/ptodata/2/pubpna/US10R_PUB.seq:*

19: /cgn2_6/ptodata/2/pubpna/US10R_PUB.seq:*

19: /cgn2_6/ptodata/2/pubpna/US10R_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  July 31, 2004, 15:39:05; Search time 888 Seconds (without alignments)
16062.201 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-700-712A-1
2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3222919 segs, 2451570024 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 gagaaggtttgttatgcctc.....cagcgaaatcggcgctgcag 2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6445838
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

0000 0	Result
1111 98 98 1121 14	2 1
1112.6 842.4 744.2 744.2 744.2 505.4 462.2 403.2 1152.2 1142.2 1142.3 177.8	Score
38. 29.0 25.6 117.4 8.9 9.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	Query
1149 852 1830121 1830121 1852 852 852 864 876 640681 96109 2731748 2440 3950	Query Match Length DB ID
, ,	BB
13 US-10-282-122A-40937 13 US-10-282-122A-40936 15 US-10-329-960-1 16 US-10-329-970-1 13 US-10-282-122A-30692 13 US-10-282-122A-32162 13 US-10-282-122A-32325 10 US-09-741-669-18 29 US-09-790-988-1 10 US-10-297-465A-1 11 US-10-297-465A-1 12 US-10-152-319A-1589 13 US-10-152-319A-1988 13 US-10-276-774-1331	ID
Sequence 40937, A Sequence 1, Appli Sequence 1, Appli Sequence 30692, A Sequence 32162, A Sequence 32325, A Sequence 182, App Sequence 1, Appli	Description

				•
		O	00000	0 00000
4444	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3321098	225 225 225 225 225	15 16 17 17 18 19 20
64. 64. 64. 64.	64.8 64.8 64.8	60.00 60.00 64.00 64.00 64.00	70.2 70.2 70 70 70 69.2	75.4 75.4 73.8 73.8 72.2
,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	44444	
795 798 1200 2730 969	1536 1536 1536 1536 1536 3298 795	795 969 792 722 1478 1536	2016 2124 1164 1133 1333 3309400	2280 3952 4137 4111 4135 687 1800
13 9 9 13	13 13 16 17 19	13 13 17 15	13 13 13	16 13 13 15 17
US-10-282-122A-6574 US-09-738-626-942 US-09-954-197-1 US-09-954-197-1 US-09-987-446-1 US-10-282-122A-14234	US-10-342-887-556 US-10-172-118-556 US-10-388-360-350 US-10-159-563-244 US-10-283-975A-254 US-10-283-975A-2500 US-09-741-669-181	US-10-282-122A-42178 US-10-282-122A-14737 US-10-282-122A-12730 US-10-332-859-254 US-10-332-859-254 US-10-084-817-332 US-09-877-178-11	US-10-169-395-81 US-10-108-260A-1011 US-09-738-626-3017 US-10-627-476-511 US-09-738-626-1 US-10-282-122A-33224 US-10-282-122A-33224	US-10-173-999-149 US-10-116-802-36 US-10-052-664-2 US-10-257-021-146 US-10-097-340-220 US-10-0404-460-258 US-10-169-395-71
Sequence 6574, Ap Sequence 942, App Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli	Sequence 556, App Sequence 550, App Sequence 350, App Sequence 244, App Sequence 254, App Sequence 200, App Sequence 101, App	. · · · · · · ·	301 51 333	Sequence 149, App Sequence 36, Appl Sequence 2, Appli Sequence 146, App Sequence 200, App Sequence 258, App Sequence 71, Appl

ALIGNMENTS

	US
Sequence 40917, Application US/10282122A publication No. US20040029129A1 GENERAL INFORMATION: APPLICANT: Wang, Liangsu APPLICANT: Malone, Cheryl APPLICANT: Malone, Cheryl APPLICANT: Malone, Cheryl APPLICANT: Malone, Cheryl APPLICANT: Yeskind, Judith APPLICANT: Yeskind, Judith APPLICANT: Yesmamoto, Robert APPLICANT: Yenzick, John APPLICANT: Yenzick, John APPLICANT: Yenzick, John APPLICANT: Yenzick, R. APPLICANT: Yenzyth, R. APPLICANT: Yenzyth, R. TITLE OF INVENTION: Identification of E FILE REFERENCE: ELITRA, 034A CURRENT FILING DATE: 2003-02-20 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR APPLICATION NUMBER: 60/230,335 PRIOR APPLICATION NUMBER: 60/230,335 PRIOR APPLICATION NUMBER: 60/230,347 PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-10-23 PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-11-27 PRIOR FILING DATE: 2000-11-27 PRIOR FILING DATE: 2000-11-23	RESULT 1 US-10-282-122A-40937/c
equence 40 ublication ENERAL INF APPLICANT: FILE OF I FILE APPLICANT: FILE OF I FILE APPLICANT: FILE APPLICANT: FRIOR APPLICANT: FRIO	1 282
equence 40937, Application US/1028212 ublication No. US20040029129A1 ENERAL INFORMATION: APPLICANT: Mang, Liangsu APPLICANT: Zamudio, Carlos APPLICANT: Zamudio, Carlos APPLICANT: Malone, Cheryl APPLICANT: Malone, Cheryl APPLICANT: John APPLICANT: Trawick, John APPLICANT: Trawick, John APPLICANT: Yamamoto, Robert APPLICANT: Yamamoto, Robert APPLICANT: Yamamoto, Robert APPLICANT: Xu, H. APPLICANT: Xu, H. APPLICANT: Nu, H. APPLICANT: Nu, H. APPLICANT: AV, H. APPLICANT: Nu, H. APPLICANTON NUMBER: US/10/282 CURRENT FILING DATE: 2000-03-02-20 PRIOR APPLICATION NUMBER: 60/291,078 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR FILING DATE: 2000-05-23 PRIOR APPLICATION NUMBER: 60/230,335 PRIOR FILING DATE: 2000-09-06 PRIOR APPLICATION NUMBER: 60/230,347 PRIOR APPLICATION NUMBER: 60/230,347 PRIOR APPLICATION NUMBER: 60/242,578 PRIOR APPLICATION NUMBER: 60/253,625 PRIOR FILING DATE: 2000-11-27 PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-12-27 PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-12-27 PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-12-27	-122
937, ORMAD ORMAD ORMAD ORMAD War Za Zy	A-40
No. US2004002 RMATION: No. US2004002 RMATION: Wang, Liangsu Jamudio, Car Malone, Cher Haselbeck, R Ohlsen, Kari Zyskind, Jud Wall, Daniel Trawick, Joh Carr, Grant Yamamoto, Ro Forsyth, R. Xu, H. Yamamoto, Ro Forsyth, R. Xu, H. Yamamoto, Ro Forsyth, R. Zyskind, Jud Wall, Daniel Trawick, Joh Carr, Grant Yamamoto, Ro Forsyth, R. ZOOOTON IUMBER GRATE: 2000- CATION NUMBER	1937,
police 2004 N. V.	ο,
MATION: Wang, Liangsu Wang, Liangsu Wang, Liangsu Malone, Cheryl Haselbeck, Robert Ohlsen, Kari Zyskind, Judith Wall, Daniel Trawick, John Carr, Grant Yamamoto, Robert Forsyth, R. Xu, H. Xu,	
mation US/10 0029129A1 Sarlos Carlos	
129A1 129A1 129A1 129A1 129A1 bert ch ch ch ch ch ch ch ch ch c	
2821 007 c 0/28 0/28 0/28 0/28 7, 848 7, 578 7, 629	
DF E 32,1	
22 8 en	
A Essential 122A	
Gелев	
r. D	
तु. द्व	
, coo	
in Microorganisms	
Sms	

```
Ş
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: DNA
; ORGANISM: Vibrio cholerae
US-10-282-122A-40937
                            Ś
                                                             밁
                                                                                                                             밁
                                                                                                                                                       δ
                                                                                                                                                                                               밁
                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/267,636
PRIOR FILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
Remaining Prior Application data removed - See File Wrapper NUMBER OF SEQ ID NOS: 78614
SOFTWARE: Patentin version 3.1
SEQ ID NO 40937
LENGTH: 1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 1118; Conserv
                                                                                                                                                                                                                                                                                             2323
                                                                                                                                                                                                                                                                                                                                                                                                                            2203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1783 TTAAGCGGTTAGGGCAAGAATGCTGCCGGGGATGACGACAAACACACCCCAATAAGTAACT
                                                                                             2503
                                                                                                                                                             2443
                                                                                                                                                                                                                              2383
                                                                                                                                                                                                                                                                                                                                                             2263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             849
                                                             429
                                                                                                                               489
                                                                                                                                                                                               549
                                                                                                                                                                                                                                                              609
                                                                                                                                                                                                                                                                                                                             669
                                                                                                                                                                                                                                                                                                                                                                                              729
                                                                                                                                                                                                                                                                                                                                                                                                                                                             789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           969
369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACCACCACTTTTGCTCTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGG 1902
                                                             CGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTGGCGAAAGCACGGCGAAACTCTTC
                                                                                                                                                                                                                                                                               AGTATTACCCAATACCGAAAGCTGGGTTTCAAGCCCTGTGATGACAGGTTTGGTAATCGG
                                                                                                                                                                                                                                                                                                                                            CACCGTAATGGCGACGAAAATGGTCGCAATACCCAATACGATAAGTGCGACACCCACGAA
                                                                                                                                                                                                                                                                                                                                                                                                                CGCATTTTGTAGAATTTCACGTGCGCGGCCAACCATCAAACTCTTCATCAGTTTTGCCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTGAACTAATACCGTAACCACTGTACCTGAAGCAATACCGTGTAGTGGGCCTCGGCCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACTTTCAGCACGCCAGAGCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGATGAAGA 2142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGCAGAGCAGTAATACAAGTGCCAATGTTCGCACCTAAGGTAAATGGGTAGATTTCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCACCAGCGCAATTTGCAGAGCAAACACGGCAAACTCACCAGAGACAGCGGTTGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCACCAGCGCAATTTGCAGAGCAAACACGGCAAACTCACCAGAGACAGCGGTTGCGGC 2022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGTTCGCGTAAGAAAGGAATACCGTAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAA 1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTAAGCGGTTAGGGCAAGAATGCTGCCGGGGATGACGACAAACACCCCAATAAGTAACT
                    TTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGC
                                                                                                                                                       CCAGTGTGAGACTTTCTCTAAAATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCAC 2502
                                                                                                                                                                                              TTTGATAAAGTCAAAACCTTTCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAG
                                                                                                                                                                                                                            TTTGATAAAATCAAAACCTTTCATGCTCATATCGCCAGTCGCAAGCAGAGGCGAAACGAG
                                                                                                                                                                                                                                                                                                                                                                                            CGCATTTTGTAGAATTTCACGTGCACGGCCAACCATCAAACTCTTCATCAGTTTGCCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGAACTAATACCGTAACCACTGTACCTGAAGCAATACCGTGTAGTGGACCTCGGCCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACTTTCAGCACGCCAGAGCCCACGAGAGGAACCATTAGGCTGGTTGTGGTCGAGGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCAGAGCAGTAATACAAGTGCCAATGTTCGCACCTAAGGTAAATGGGTAGATTTCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGTTCGCGTAAGAAAGGAATACCGTAAATCAAGACCGTAGCCATCAAGTTAAAGCTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACCACCACCATTTTGCTCTTACAAGCCCAAGTTGAGATGAGCTCAGCACCTTTAATAGG
 TTTACAGCGCATATGGCCAAGGCTGACGAGTATTGGTCACAGTAGTACCAATATTGGC
                                                                                                                               CCAGTGTGAGACTTTCTCTAAAATTCCAAACATCATTTCTAGAGGTAGGAAGATCAGCAC
                                                                                                                                                                                                                                                              AGTATTACCCAATACCGAAAGCTGGGTTTCAAGACCTGTTATGACAGGTTTGGTAATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38.2%; Score 1112.6;
99.2%; Pred. No. 0;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                2442
                                                                                                                                                                                                                                                                                             2382
                                                                                                                                                                                                                                                                                                                                                             2322
                                                                                                                                                                                                                                                                                                                                                                                                                              2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 970
                                                                                               2562
                                                                                                                                 430
                                                                                                                                                                                               490
                                                                                                                                                                                                                                                                                                                             610
                                                                                                                                                                                                                                                                                                                                                                                              670
                                                                                                                                                                                                                                                                                                                                                                                                                                                              730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1842
                                2622
                                                              370
                                                                                                                                                                                                                                                              550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1090
310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ٥,
```

```
FILE REFERENCE ELITA. 034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2000-03-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR FILING DATE: 2000-09-06
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR PILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
US-10-282-122A-40936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-282-122A-40936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Zyskind, Judith
                                                              Remaining Prior Application data removed -
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PatentIn version 3.1
SEQ ID NO 4936
LENGTH: 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 40936, Application US/10282122A Publication No. US20040029129A1 GENERAL INFORMATION:
                TYPE: DNA ORGANISM: Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTTGCCCAACGTAGGCCTTTCGTGGTCAGCGAAATCGGCGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTTGCCCAACGTAGGCCTTTCGTGGTCAGCGAAATCGGCGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTAAAACCGCTGCCGACCATCGCAACTGCAAGAAGTAGAATACAGCATGAAAGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCTGCAATTGGGTGGGAAGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTAAAACCGCTGCCGACCATCGCGACTGCAAGAAGTAGTAAATACAGCATGAAAGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTGCAATTGGGTGGGAAGCAAATTCAAATAGAACTTTGGCTTGATCGCCGGTTGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACTAAACCAATCATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ohlsen, Kari
Zyskind, Judith
Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yamamoto, Robert Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Trawick, John
                                                                                                                                                                See
                                                                                                                                                             File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2909
                                                                                                                                                                  or PALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2802
```

Query Match Best Local Similarity

29.0**%**; 99.3**%**;

Score 842.4; DB 13; Pred. No. 1.2e-267;

Length 852;

RESULT 3 US-10-329-960-1 ; Sequence 1, A ; Publication N ; Publication INFOR ; APPLICANT: F ; TITLE OF INV ; TITLE OF INV ; TITLE OF INFORMATION INFOR	₽ Q	g Qy	Qy da	. Qy	Qy	Qy Db	g dd Qy	dg Qy	Qy da	Qy 1	gb Qy	DB QY	Qy Db	D Qy	Qγ ,	Matches
SULT 3 -10-329-960-1 Sequence 1, Application US/103299 Publication No. US20030099277A1 GENERAL INFORMATION: GENERAL INFORMATION: Nucleotide S TITLE OF INVENTION: Nucleotide S TITLE OF INVENTION: Thereof, an FILE REFERENCE: PB186P1 CURRENT APPLICATION NUMBER: US/1	1679 TTTTCAGTCTAA	1619 GTCACT 781 GTCACT	1559 CCAGCG 721 CCAGCG	L499 CACATT	1439 CTGATG	1379 TCATGTGATGTG 541 TCATGTGATGTG	1319 ATGTAC 481 ATGTAC	1259 GGTGAA 421 GGTGAA	1199 GGTCAT 361 GGTCAT	1139 GAGGAT	1079 ACCTGG 241 ACCTGG	1019 TTGCTC	959 AACAAT 121 AACAAT	899 GAACGA 61 GAACGA	839 GTGAAA 1 GTGAGA	846; Con
0-1 , Application US/1032; n No. US20030099277A1 FFORMATION: FPARATION: INVERTION: Nuclectide INVENTION: Thereof, a REENCE: PB16691 PPLICATION NUMBER: US	CAGTCTAA 1690 CAGTCTAA 852	GTCACTTIGGATGATITTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCG	CCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGG 	CACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTC 	CTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCG	TCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCG 	ATGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGT	GGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGC	GGTCATATTGACCAGTTGAAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGA 	GAGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGT 	ACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGT	TIGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAA 	AACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAG	GAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGC 	GTGAAACAGTATTTAGATCTITGTCAGCGCATCGTCGATCAAGGTGTTTGGGTTGAAAAT	Conservative
60 equenc d Uses		TGACGTCACCO	CATATCAATCCAAAGATTAAAACACTGCAGGA 	ACTCGAATTG <i>I</i> ACTCGAATTG <i>I</i>	AGGGAAAAAG AGGGAAAAAGG	GGGGTTGAAT7 GGGGTTGAAT7	TTCATTGCTGC	CTACAATCCGC	GAAAAAGATTO GAAAAAGATTO	CGTGTATGGTC	CAATTTAAACO	TGGTTACGAT <i>I</i> TGGTTACGAT <i>I</i>	AGTGACTACAO AGTCACTACAO	TTGTTTGACTGTGATT TTGTTTGACTGTGATT	TCTTTGTCAGCC	0; Misma
of the Thereof		CGGATATCAGTT CGGATATCAGTT	VAGATTAAAAC VAGATTAAAAC	ATGCGCGATGT ATGCGCGATGT	CGGGCTTGGC	TTCAACATGGT	GGGATACCTT	GTGAATTTCA GTGAATTTCA	STTGATGATTT STTGATGATTT	STTCAGGGTAG	DAAGCATGGCT	VATIGCGGCGGA VATIGCGGCGGA	CGCAAGAGTTT CGCAAGAGTTT	STGATTAATGC STGATTAATGC	GCATCGTCGA	Mismatches 6;
Haemophilus i		AGTTCCACGATCCTA AGTTCCACGATCCTA	ACTGCAGGATT ACTGCAGGATT	GCAGCTAAAAC GCAGCTAAAAC	GTATCACAAGA GTATCACAAGA	CCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCG 	GTATCTCAACA GTATCTCAACA	CATGGGGTGTT CATGGGGTGTT	GAGCCGTGGCG GAGCCGTGGCG	AGCTTGGGCTA AGCTTGGGCTA	CAACAATCCTT	TTTTCGCCAAT	TTGGAAAGCTG	CGATTTGACCT	TCAAGGTGTTT TCAAGGTGTTT	; Indels
influenzae F		CTATTCAATACCCG TATTCAATACCCG	TTTGGAAACTTGG TTTGGAAACTTGG	CGTGAGCCATTC CGTGAGCCATTC	TCGTCAATGCC	TGTTCCTTGCC	GTACTCAGCGI	TGCGCCCTTGC	TTGATGACCGI	AGCCTGATGGI AGCCTGATGGI	'ACCGTAAAGG' 'ACCGTAAAGG'	TAGGTACCAAJ	CCGTAGCCGAC	ACGATGTGGG	GGGTTGAAAAI GGGTTGAAAAI	0; Gaps
Rd Genome,		3 1678 3 840	3 1618 3 780	720	3 1498 3 660	3 1438 3 600	[1378 540	1318	1 1258 1 420	[1198 360	r 1138	1078 1 240	3 1018	2 958. 2 120	0 0 L	0;
Frag																
OFZ#0FZ#0FZ#		 10 E Z			 . O E Z		 	 1052			 . O P Z !	 	 	S S S S S S S S S S S S S S S S S S S	י יי יי יי סי סי סי סי מי גע	: .: B Cl
FEATURE: LOCATION: LOCATION: OTHER INFO FEATURE: NAME/KEY: LOCATION: OTHER INFO FEATURE: NAME/KEY: LOCATION: OTHER INFO FEATURE: NAME/KEY: LOCATION: LOCATION:	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INFO	· * Z	20 20		CURRENT FIL PRIOR APPLI

FILING DATE: 2003-01-02
PPLICATION NUMBER: US 09/643,990
LING DATE: 2000-08-23
PLICATION NUMBER: US 08/487,429
LING DATE: 1995-06-07
PLICATION NUMBER: US 08/426,787
PLICATION NUMBER: US 08/426,787
PLICAG DATE: 1995-04-21
PSEQ ID NOS: 1
PATENTIN VERSION 3.1 : misc_feature : (44905)..(44905) FORMATION: n equals misc_feature : (36636)..(36636) FORMATION: n equals a, : misc_feature : (4747)..(4747) FORMATION: n equals misc_feature (47036)..(47036) CORMATION: n equals a, misc_feature (44975)..(44975) ORMATION: n equals misc_feature (44416)..(44416) ORMATION: n equals misc_feature (40808)..(40810) ORMATION: n equals misc feature (36551)..(36551) CORMATION: n equals misc_feature (36543)..(36543) ORMATION: n equals misc feature (29298)..(29298) ORMATION: n equals misc feature (10150)..(10150) ORMATION: n equals misc_feature : (9921)..(9921) ?ORMATION: n equals misc_feature (51334)..(51334) ORMATION: n equals a, t, g or c misc_feature (45732)..(45732) ORMATION: n equals misc_feature (45593)..(45593) ORMATION: n equals 830121 Haemophilus influenzae a a, a, a, a, 'n, ŗ ŗ Ĺ Ĺ ŗ ŗ ŗ ŗ Ĺ Ĺ ί, ŗ g or c g g or c ω ω ω Q Q ıΩ g g or c Ω g or c g or c or c or c or c or c or c 양 or c or c 얹 a

```
NAME/KEY: misc_feature
LOCATION: (122336)..(122336)
OTHER INFORMATION: n equals
                                             NAME/KEY: misc_feature
LOCATION: (122167)..(122167)
OTHER INFORMATION: n equals
                                                                                       NAME/KEY: misc_feature
LOCATION: (121344)..(121344)
OTHER INFORMATION: n equals
                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (120038) . (120038)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (65309)..(65309)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (55369)..(55369)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (51805)...(51805)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (51602)...(51602)
OTHER_INFORMATION: n equals
                                                                                                                                                                           NAME/KEY: misc feature
LOCATION: (119924)...(119924)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (117136)..(117136)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (105121)..(105121)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (102696)..(102696)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (100091)..(100091)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (51786)..(51786)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (65313)..(65313)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: n equals
                                                                   NAME/KEY:
                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (107248)..(107248)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (80024)..(80024)
                                                                                                                                                                                                                            INFORMATION:
                                                                                                                                                                                                                          misc feature
(119750)..(119750)
ORMATION: n equals
                                                                                                                                   a,
                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    þ
  þ
                                             a
                                                                                         a
                                                                                                                                                                                ġ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
  ŗ
                                             4
                                                                                         ŗ
                                                                                                                                   rt
                                                                                                                                                                                ŗ
                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                      Ĺ
                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                                                             Ţ
                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
  ω
                                             ίO
                                                                                        g
                                                                                                                                   g
                                                                                                                                                                               Q
                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                            φ
                                                                                                                                                                                                                                                                                                                                                                                                         Θ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                      or
                                                                                                                                     or
                                                                                                                                                                                or
                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ٥ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
   õ
                                              or
                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
   0
                                                                                                                                                                                                                                                                        n
                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                          a
                                                                                                                                                                                O
                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O
```

```
밁
                                                              Ş
                                                                                         밁
                                                                                                               Ś
                                                                                                                                          밁
                                                                                                                                                                 Ş
                                                                                                                                                                                             망
                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                Matches 1134;
                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc feature
LOCATION: (152500)..(152500)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (150841)..(150841)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (145058)..(145058)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (139910)..(139910)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
NAME/KEY: misc_feature
NCATION: (131360)...(131360)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (131340)..(131340)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc feature
LOCATION: (147197)..(147197)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (145942)..(145942)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAME/KEY: misc_feature
LOCATION: (145171)...(145171)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (142750)..(142750)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (140398)...(140398)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EATURE:
                                                                                                                                            958206
                                                                                                                                                                                              958146
                                                                                                                                                                                                                                               958086
                                                                236
                                                                                                                   176
                                                                                                                                                                     116
                 296
                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                              misc_feature
(152530)..(152530)
                                                                                                                                                                                             ACGCTTGGCGATAGTAATATCGGCTTACGTTTGGTATGGCTTGATGTACCTTTTAGGTTTT
                                                                                                                                                                                                            TCGATCGGC-----CCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTC 115
                                                                                                                                                                                                                                                             AGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTTCCCAATATTGACCCCGTATTGTTT 61
GTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTC
                                                                                                                 GAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTT
                                                                                                                                         GTTTTTGCACGTTGGGCTTGGGGTTCGCCGTGCTAATCGCCCAAATAGCGGTTGGACAGTA 958265
                                                                                                                                                             CTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGGGCAGTGGTTGGACGCGT
                                                                                                                                                                                                                                               ATAAGGAAAATTATGAATTCAAATTATTTACTTCTTCCCCACTTTGATCCGAGTATTTTT
                                        GATCAAGTTGATAGCTTACTTTTCAACGGTTTTATGGGGGGTGTTTATTGGCGGACGTGTT
                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                          25.6%;
66.7%;
                                                                                                                                                                                                                                                                                                                                                                                       a
P
                                                                                                                                                                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                <u>,</u>
                                                                                                                                                                                                                                                                                             Score 744.2; DB 15;
Pred. No. 1.4e-232;
0; Mismatches 538;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                       Θ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ů,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                         O
                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                        Length 1830121;
                                                                                                                                                                                                                                                                                                 27;
                                                                                                                                                                                                                                                                                              Gaps
```

958205

958145

235

295

958325

중 유

	1432	1373 CAGCGTTCATGTGATGTGCCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTTC
	1372 959447	1313 CCTTGCATGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACT
	1312 959387	1253 GACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGC
	1252 959327	1193 GATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTGTGAGCCGTGGCGTTGAT
	1192 959267	1133 AAAGGTGAGGATGACATGGGGACGCGTGTATGGTGTTCAGGGTAGAGCCTTGGGCTAAGCCT
	1132 959207	1073 ACCAAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGT
, ., ., .	1072 959147	1013 GCCGAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGT
, ., ., .,	1012 959087	953 GTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTA
	952 959027	893 GANAATGAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGAT
~ ~ ~ ~	892 958967	833 AGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTT
	832 958907	773 ATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGT
	772 958859	713 GGIGGCITCATTICAAIGGGGCAAAICCICTCCITAACTATGGIGATCAICGGIATTITG
~ G %	712 958799	653 GGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTT
ם גם	652 958745	593 TGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATAC
	592 958685	533 CATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAAT
) <u>p</u> (532 958625	476 CGAGTAACGGATGTGCCTTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGC
ט פ כ	475 958565	416 GTGCCATTCGGTTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGA
) <u>n</u> c	415 958505	356 TGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGGCCGATTTTGTTGCCCCTTTA
_	958445	958386 GTTTGGGAAGGTGGAATGTCGTTCCACGGTGGCTTAATTGGTGTAATTGTTGCTATGATT

밁

S

음 성 음 성 음 성

중 유

밁

유

ঠ

밁

S

S

밁

S

δ

S

S

S

음 성 음 성 음 성 음

```
CURRENT APPLICATION NUMBER: US/10/329,670
CURRENT FILING DATE: 2002-12-24
PRIOR APPLICATION NUMBER: US 09/643,990
PRIOR FILING DATE: 2000-08-23
PRIOR APPLICATION NUMBER: US 08/487,429
PRIOR APPLICATION NUMBER: US 08/426,787
PRIOR APPLICATION NUMBER: US 08/426,787
PRIOR PILING DATE: 1995-04-21
PRIOR FILING DATE: 1995-04-21
NUMBER OF SEQ ID NOS: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/10329670
Publication No. US20040018503A1
GENERAL INFORMATION:
APPLICANT: Fleischmann et al.
TITLE OF INVENTION: Nucleotide Sequence of the Haemophilus influenzae Rd Genome,
TITLE OF INVENTION: Thereof, and Uses Thereof
FILE REFERENCE: PB186P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn
SEQ ID NO 1
LENGTH: 1830121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: Haemophilus influenzae FEATURE:
NAME/KEY: misc_feature
LOCATION: (4747)..(4747)
OTHER_INFORMATION: n equals a, t.
NAME/KEY: misc_feature
LOCATION: (36636)..(36636)
OTHER INFORMATION: n equals a,
                                                                        NAME/KEY: misc_feature
LOCATION: (36551)..(36551)
OTHER INFORMATION: n equals
                                                                                                                                              NAME/KEY: misc feature
LOCATION: (36543)...(36543)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (29298)..(29298)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc feature LOCATION: (10150)...(10150)
                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
NAME/KEY: misc_feature
LOCATION: (9921)..(9921)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       959748 TATCCTTTTTCCGTCTAAT 959766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             959508 TTAGCACTTÁTGGCTCÁGÁTCACGGGCAÁÁÁÁAGCCGGCAAGGCATATCÁTÁAAÁTTGTG 959567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   959568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTC 1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTTTCCCATTACCAAAATTAGAAATTAATCCAGATATAAAAACGCTTGAAGATTTGGAA 959687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATGCGCATATTTATGAAGATCAGCTTGAGTTAATGCGTGACGTACAACTTAAACGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACCCGTTTTCAGTCTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTTGGGTCACGATGATTTTAAAGTCGTTGGCTATCAATCCCACGAACCAATTAAA 959747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTTGGGTCACTTTGGATGTTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAA 1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATTCCCAGCCCCCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAA 1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATGCGCACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAG 1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       version 3.1
                                                                           a,
                                                                                                                                                                                                                                                                                                   a)
                                                                                                                                                                                                                                                                                                                                                                             D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1691
   ί,
                                                                           Ĺ
                                                                                                                                                   ŗ
                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                             ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ,
 ω
                                                                         g
                                                                                                                                                 ω
                                                                                                                                                                                                                           Ω
                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
   or
                                                                           ö
                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                     ç
                                                                                                                                                                                                                           OĽ.
                                                                                                                                                                                                                                                                                                                                                                               ດ
                                                                                                                                                                                                                                                                                                     O
                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     959627
```

Fray

```
FEATURE:
NAME/KEY: misc feature
LOCATION: (40808)...(40810)
OTHER INFORMATION: n equal
                                NAME/KEY: misc feature
LOCATION: (102696)..(102696)
OTHER INFORMATION: n equals
FEATURE:
                                                                                NAME/KEY: misc feature
LOCATION: (100091)..(100091)
OTHER INFORMATION: n equals
                                                                                                                            PEATURE:
NAME/KEY: misc_feature
LOCATION: (80024)...(80024)
OTHER INFORMATION: n equals
                                                                                                                                                                       NAME/KEY: misc_feature
LOCATION: (65313)..(65313)
OTHER INFORMATION: n equal
                                                                                                                                                                                                                                                                                                  NAME/KEY: misc feature
LOCATION: (51805)..(51805)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc feature
LOCATION: (44975)...(44975)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc feature
LOCATION: (44905)...(44905)
OTHER INFORMATION: n equals
NAME/KEY: misc_feature
LOCATION: (105121)...(105121)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (51786)..(51786)
                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (51334)..(51334)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (45593)..(45593)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
LOCATION: (44416)..(44416)
                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (65309)..(65)
                                                                                                                                                                                                                                                              OTHER
                                                                                                                                                                                                                                                                      NAME/KEY: misc feature LOCATION: (55369)..(55
                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (47036)..(47036)
DTHER INFORMATION: n equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (45732)..(45732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER
                                                                                                                                                                                                                                                                                                                                                                                                               VAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION: n equals
                                                                                                                                                                                                                   INFORMATION:
                                                                                                                                                                                                                                                            INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
(51602)..(51602)
                                                                                                                                                                       n equals
                                                                                                                                                                                                                  n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      n equals
                                                                                                                                                                                                                             (65309)
                                                                                                                                                                                                                                                                        (55369)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       equals
 a,
                                          a,
                                                                                                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                              g)
                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
 Ļ
                                         Ļ
                                                                                   ū
                                                                                                                             Ĺ
                                                                                                                                                                       ŗ
                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                      ŗ,
                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                   ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ί,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                            ω
                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                              ū
                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                  ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
Q
                                         ω
                                                                                   ω
                                                                                                                                                                      ω
  유
                                          õ
                                                                                                                               ç
                                                                                                                                                                        9
                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                or
                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ω
                                          a
                                                                                     a
                                                                                                                                                                       a
                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
```

```
NAME/KEY: misc_feature
LOCATION: (107248)...(107248)
OTHER INFORMATION: n equals a,
FEATURE:
NAME/KEY: misc_feature
LOCATION: (117136)..(117136)
OTHER INFORMATION: n equals a,
                                                                                                                                       FEATURE:

NAME/KEY: misc_feature
LOCATION: (145171)..(145171)

TWEORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE: nisc feature NAME/KEY: misc feature (120038)..(120038)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:

NAME/KEY: misc_feature
LOCATION: (147197)..(147197)
OTHER INFORMATION: n equals
                FEATURE:
NAME/KEY: misc_feature
LOCATION: (150841)..(150841)
OTHER INFORMATION: n equals
                                                                                                   FEATURE:
NAME/KEY: misc_feature
LOCATION: (145942)..(145942)
OTHER INFORMATION: n equals
                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (145058)..(145058)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                             FEATURE:
NAME/KEY: misc_feature
LOCATION: (142750)...(142750)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY: misc_feature
LOCATION: (140398)..(140398)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc feature
LOCATION: (131360)..(131360)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (131340)..(131340)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
NAME/KEY: misc_feature
LOCATION: (122336)..(122336)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (139910)..(139910)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (122167)..(122167)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (121344)..(121344)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (119750)..(119750)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                EATURE:
                                                                                                                                                                                    e
,
                    a,
                                                            a,
                                                                                                                                              a,
                                                                                                                                                                                                                               a,
                                                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                                                 a,
                                                                                                                                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e
P
                                                                                                      þ
                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                         ,,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ,
                                                            ,
                                                                                                      ۲
                                                                                                                                             ŗ
                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                    g
                                                            ω
                                                                                                     g
                                                                                                                                             g
                                                                                                                                                                                      g
                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                     ö
                                                             õ
                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0r
                                                                                                      õ
                                                                                                                                               e
                                                                                                                                                                                        õ
                     ი
                                                             a
                                                                                                       a
                                                                                                                                               a
                                                                                                                                                                                       a
                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                          ი
                                                                                                                                                                                                                                                                                                                  O
                                                                                                                                                                                                                                                                                                                                                          O
                                                                                                                                                                                                                                                                                                                                                                                                  n
                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ი
```

S

1132

959207

1252

959267

1192

```
Ś
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                          δ
                                                                                                                 δ
                                                                                                                                                 밁
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
             문
                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 25.6%;
Best Local Similarity 66.7%;
Matches 1134; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (152500)..(152500)
OTHER INFORMATION: n equals
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   958086 ATAAGGAAAATTATGAATTCAAATTATTTACTTCTTCCCCACTTTGATCCGAGTATTTTT
             958968
                                                                                                                                                                                                                                                                                                                                                                         958686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       958386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              958326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     958266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          958206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                958146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
(152530)..(152530)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTTTTGCACGTTGGCTTGCGGTTCGCCGTGCTAATCGCCCAAATAGCGGTTGGACAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGCTTGGCGATAGTAATATCGGCTTACGTTGGTATGGCTTGATGTACCTTTTAGGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGAAGGTTTGTTATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTT
                                                                                                                                                                             ATGATGGTTTGGTCTTACAAGCGCGGTTTGTATCAAGACCGTGTAGCAGCAAAATAGGGT
                                                                                                                                                                                                                                                     GGTGGCTTCATTTCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTG
                                                                                                                                                                                                                                                                                                  GGCGTCTTCCGTTTTATTGTGGAATATGTGCGTGAACCTGAAG-----TTGAAAATTTC
                                                                                                                                                                                                                                                                                                                        GGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTGGGTCTGTTT
                                                                                                                                                                                                                                                                                                                                                                         ATTTTATTAAAAAACCACGTCCAATGGCTTCTGTTGCAGGTTTATTCTTAATTGGTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGAGTAACGGATGTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCC----CACTGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGCAAGICTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCGGCAGTGGTTGGACGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGATCGGC-----CCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTC
           GCTAATGAACGTACAGGTAAGCATTGCCTCACGGTCATTAATGCAGATTTAGAATATGAT
                                            GAAAATGAACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGAT
                                                                                                        AGTTAGGTGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTGGGTT
                                                                                                                                                                                                                               TTTGGGATTATTACACGAGGCCAAGCCCTTTGCTTGCCGATGATTATTGGTGGTGCTTTC
                                                                                                                                                                                                                                                                                                                                                                                                          TGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                              CATCCTTCACAGCTTTATGAATTCGCCCTTAGAAGGCGTGGTTCTGTTCTTTATTCTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGAAACGAATGTGCCTTGGGCAATGATTTTCCCGAATGATCCTCTTTTACTGCCTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTCCGTTTGGTTTAGGTTAGGCAGAATTGGTAATTTCATTAATCTTGAACTATGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTTGTTGCCCCCTTTA 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTTGGGAAGGTGGAATGTCGTTCCACGGTGGCTTAATTGGTGTAATTGTTGCTATGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATCAAGTTGATAGCTTACTTTTCAACGGTTTTATGGGGGGTGTTTATTGGCGGACGTGTT
                                                                                   ATTTTTATGAAGCAATATCTTGAGCTTTGTCGCCGCATTGTTAGTGAAGGGGAATGGGTT
                                                                                                                                                          ATTATGGCTTGGGCTTATTCACGC------AAAAGTGCGGTCATAAAATAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGACATCTTATTCTCAAAAACGTAATTTTTGGCAAACGGCTGATTTTGTTGCGCCCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 744.2; DB 16;
Pred. No. 1.4e-232;
0; Mismatches 538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1830121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          958265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                            652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     958145
                                                                                 958967
                                                                                                                                                        958907
                                                                                                                                                                                                                               958859
                                                                                                                                                                                                                                                                                                    958799
                                                                                                                                                                                                                                                                                                                                                                                                                                                958685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           958565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  958505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       958445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              958385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     958325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                   RESULT 5
US-10-282-122A-30692
                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                 Sequence 30692, Application US/10282122A Publication No. US20040029129A1 GENERAL INFORMATION:
                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                               APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                     APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
                               APPLICANT:
TITLE OF I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        959148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       959628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     959508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               959388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            959268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     953
?: Xu, H.
INVENTION: Identification of Essential
ERENCE: ELITRA.034A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGGCAACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTA 1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATGCGCACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAG
                                                                      Trawit...
Carr, Grant
Carr, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTAGCACTTATGGCTCAGATCACGGCAAAAAAAGCCGGCAAGGCATATCATAAAATTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTGCGCTGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTC 1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCGTTCATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTC 1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTTGTATGCATACGCATACTTTTTCTCTTGTGGGCGATACTTTACATCTTACTAGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATAGAGGAGAGTTTTAACTTTTTTTAACCCTGGGGAATTTGATCTTGGTTGTCTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACCGAGGTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGC 1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATGGAGAAACTATCGATCAGCTACGTAAAATTGTTAATAACTTAACGAAAGGTATTGAT 959327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGGTGGTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTTGAGCCGTGGCGTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGGTGAGGATGACATGGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGAAAACTTGGGATGCTAATGCGAATGAAAATGCAGCTTGGCTTGCAAATCCGCATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCAAAACCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGAGTTGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGT 1072
                                                             Yamamoto, no.
                                                                                                                                                                                                                                                                                                                                                                                                                               TACCCGTTTTCAGTCTAAT 1691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>ACTTGGGTCACGATGGATTTTTAAAGTCGTTGGCTATCAATCCCACGAACCAATTAAA</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTTGGGTCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAA 1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTTCCCATTACCAAAATTAGAAATTAATCCAGATATAAAAACGCTTGAAGATTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATTCCCAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAA 1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATGCGCATATTTATGAAGATCAGCTTGAGTTAATGCGTGACGTACAACTTAAACGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTTGCATGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGAGGCGTTGATGATATGGGGCGCGTATATGGTGTGCAAGGCAGAGCATGGCGTAAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGAATTTTTAGGTTATATTCGTGGATATGACAATGCCGCTGATTTTCCGCGCACTTGGC 959147
                                                  Forsyth,
Xu, H.
                                                                                                                                      Zyskind, Judith Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                             959766
                               Genes
                               'n
                             Microorganisms
```

1552

959567

959627

959507

959447 1372 959387

```
Ś
                                                             밁
                                                                                                                                       밁
                                                                                                                                                                           Ş
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-282-122A-30692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 30692
LENGTH: 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Remaining Prior Application data removed NUMBER OF SEQ ID NOS: 78614
SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/207,727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA ORGANISM: Pasteurella multocida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/257,931 FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2000-09-09
APPLICATION NUMBER: 60/242,578
FILING DATE: 2000-10-23
APPLICATION NUMBER: 60/253,625
FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/230,335
FILING DATE: 2000-09-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/206,848 FILING DATE: 2000-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/269,308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/267,636 FILING DATE: 2001-02-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                    1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/230,347
                       1380
                                                                                                 1320
                                                                                                                                                                                                                                                         1200
                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1020
                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                         422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840 TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTGAAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
CATGTGATGTGCCCTTGGGGTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGC 1439
                                                                                                                                                                                                                                                                                                                          AGGATGACATGGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCCTAAGCCTGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                        CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTG 1139
                                                                                           TGTACAGCCATCATTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT 1379
                                                                                                                                         GTGAAATCATGACCTTCTTCAACCCCGGTGAATTTGAACTGGGTTGCCTACGTCCTTGCA
                                                                                                                                                                           GIGAAATTCITAACTICTACAATCCGGGIGAATTTCACATGGGGIGTTTGCGCCCTTGCA 1319
                                                                                                                                                                                                                   AAACCGTCGATCAATTGCGCAAAATCGTCAATAATCTGCGCAACGGCATTGATGACCGTG
                                                                                                                                                                                                                                                       GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                                                                                                                                                                 CCGATGATATGGGACGTGTTTATGGCGTACAAGGGCGTGCATGGCGCAAACCGAACGGTG
                                                                                                                                                                                                                                                                                                                                                                          CCTGGGATGCCAATGCTAATGAAAACAGTGCATGGCTCAATAATCCGCACCGCAAAGGCA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTTAGGTTATATCCGTGGCTATGACAATGCGGCAGATTTCCGCAAACTCGGCACCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAA 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATAACCAATTTCCGTTGATCACCACACGCAAAAGCTATTGGAAAGCGGCAATTGCAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACGGACTGGCAAACGTTGTCTGACCGTGATTGATGCGGATCTCACCTACGATGTTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAAACACTATTTAGAACTTTGCCAACGTATCGTTGAAGGTGTTTTGGGTTGAAAATG
                                                           TGCACACCCACACCTTCTCATTACTCGGTGATACCCTCTATCTCACCAGTTATCAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 505.4;
Pred. No. 7.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - See File Wrapper or PALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .8e-156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1019
                                                                                                                                                                                                                                                         1259
                                                                                                                                                                                                                                                                                                                                    1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               959
                                                             541
                                                                                                                                         481
                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
PRIOR FILING DATE: 2000-11-27

PRIOR APPLICATION NUMBER: 60/257,931

PRIOR APPLICATION NUMBER: 60/267,636

PRIOR APPLICATION NUMBER: 60/267,636

PRIOR FILING DATE: 2001-02-09

PRIOR PRILING DATE: 2001-02-16

PRIOR FILING DATE: 2001-02-16

PRIOR FILING DATE: 2001-03-16

PRIOR FIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
US-10-282-122A-22162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-282-122A-22162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/230,335
PRIOR FILING DATE: 2000-09-06
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 22162, Application US/10282122A Publication No. US20040029129A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Identification of Essential Genes FILE REFERENCE: ELITRA.034A CURRENT APPLICATION NUMBER: US/10/282,122A CURRENT FILING DATE: 2003-02-20 PRIOR APPLICATION NUMBER: 60/191,078 PRIOR PILING DATE: 2000-03-21 PRIOR APPLICATION NUMBER: 60/206,848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Wang, Liangsu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                           TYPE: DNA ORGANISM: Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                          ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       542 CTTGTGATGTGCCGCTTGGCTTGAATTTCAACCAAATTCAAGTGTTCACCTTTCTTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGATGGCACAGATCACAGGGAAAAAGGCCGGGCTTGGCGTATCACAAGATCGTCAATGCGC 1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTCTGTGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCACTTIGGATGATTTIGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT 1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTCAGTCTAA 1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGACTATGGATGATTTTAAGGTCACGGGCTATCAATGCCACGATGCCATTAAATATCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTTGCCACAATTACACATTAACCCCCGAGATTAAAACTCTCGAAGATTTAGAAACTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGG 1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAAACGTGAGCCATTCC 1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGATGGCACAAATTACGGGCAAAAAAGCGGGTAAGGCGTACCACAAAATCATCAATGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACATTTATGAAGATCAACTTGATCTCATGAAAAATGTGCAATTAAAAACGTGACCCCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ohlsen, Kari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zamudio, Carlo
Malone, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Carr, Grant
Yamamoto, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Carlos
                                                                                                                                                                                                                                                                See File Wrapper or PALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
```

```
RESULT 7
US-10-282-122A-32325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                          ð
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                               ई
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                          र्
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
Sequence 32325, Application US/10282122A
Publication No. US20040029129A1
GENERAL INFORMATION:
APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1320
                                                                                                                                                                                                  1680
                                                                                                                                                                                                                                                                                                                                                                                                  1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1020
                                                                                                                                                                                                                                                                  1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      422
                                                                                                                                                                    842
                                                                                                                                                                                                                                   782
                                                                                                                                                                                                                                                                                                    722
                                                                                                                                                                                                                                                                                                                                                                   662
                                                                                                                                                                                                                                                                                                                                                                                                                                   602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15.9%;
Similarity 71.4%;
                                                                                                                                                                  TTTCCGTCTAA 852
                                                                                                                                                                                        TTTCAGTCTAA 1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCGC 1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGTGATGTGCCCTTGGGGTTGAACTTTCAACATGGTGCAGGTTTTATGTGTTCCTTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT 1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGAGATTTTAACTTTTTTAACCCTGGGGAATTTGATCTTGGTTGTCTTCGTCCTTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ANACTATCGATCAGCTACGTAAAATTGTTAATAACTTAACGAAAGGTATTGATGATAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATATTGACCAGTTGAAAAAGATTGTTGATGATTTTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCCTAAGCCTGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTG 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATAATCAATTTCCGCTGATTACTACCCGTAAAAGTTATTGGAAAGCGGCGATTGCTGAAT 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTGGAAAGCTGCCGTAGCCGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACGAACGGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTTGACCTACGATGTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTGAAAATG
                                                                                                                                                                                                                                   TCACGATGGATTTTAAAGTCGTTGGCTATCAATCCCACGAACCAATTAAATATCCTT
                                                                                                                                                                                                                                                                                                                                   CAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                  ACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                   TTATGGCTCAGATCACGGGCAAAAAAAGCCCGGCAAGGCATATCATAAAATTGTGAATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGTGATGTTCCGCTTGGATTGAATTTCAATCAAATTCAGGTGTTTACCTTCTTAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGTACAGGTAAGCATTGCCTCACGGTCATTAATGCAGATTTAGAATATGATGTGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGAAGCAATATCTTGAGCTTTGTCGCCGCATTGTTAGTGAAGGGGAATGGGTTGCTAATG
                                                                                                                                                                                                                                                                TCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT 1679
                                                                                                                                                                                                                                                                                                      CATTACCAAAATTAGAAATTAATCCAGATATAAAAACGCTTGAAGATTTGGAAACTTGGG
                                                                                                                                                                                                                                                                                                                                                                   ATATTTATGAAGATCAGCTTGAGTTAATGCGTGACGTACAACTTAAACGCGAGCCTTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCATACGCATACTTTTTCTCTTGTGGGCGATACTTTACATCTTACTAGCTATCAGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTTAGGTTATATTCGTGGATATGACAATGCCGCTGATTTCCGCGCACTTGGCACGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 462.2; DB 13.
Pred. No. 1.7e-141;
0; Mismatches 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 13.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       852;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1079
                                                                                                                                                                                                                                                                                                                                                                                                    1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       959
                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                    1619
                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                   문
                             δ
                                                                    밁
                                                                                                 S
                                                                                                                                                                                                  멼
                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                   멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Proteus
US-10-282-122A-32325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR FILING DATE: 2000-09-06
PRIOR FILING DATE: 2000-09-06
PRIOR PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR PILING DATE: 2000-10-23
PRIOR PRIOR DATE: 2000-11-23
PRIOR PILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 570; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn version 3.1 SEQ ID NO 32325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Remaining Prior Application data removed NUMBER OF SEQ ID NOS: 78614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: ELITRA.034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 849
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/269,308 FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 2000-12-22
APPLICATION NUMBER: 60/267,636
FILING DATE: 2001-02-09
                                   1200
                                                                                                                                                                    1080
                                                                                                                                                                                                                                     1020
                                                                                                                                   242
                                                                                                                                                                                                    182
     362
                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INVENTION: Identification of Essential
                                                                                                                                                                                                                                                                                                                                                      AACGAACGGCAAGCGTTGTTTGACTGTGATTAATGCCGATTTGACCTACGATGTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                        TGAAACAGTATTTAGATCTTTGTCAGCGCATCGTCGATCAAGGTGTTTTGGGTTGAAAATG
                                  GTCATATTGACCAGTTGAAAAAAGATTGTTGATGATTGAGCCGTGGCGTTGATGACCGAG
                                                                                                                                                                                                                     TGCTCGGCTATATTCGTGGTTACGATAATGCGGCGGATTTTCGCCAATTAGGTACCAAAA
                                                                                                                                                                                                                                                                     ATAACCAATTTCCACTCATAACAACGCGTAAAAGTTTTTACAAAGCCGCGATTGCGGAAC
                                                                                                                                                                                                                                                                                        ACAATCAGTTTCCTCTAGTGACTACACGCAAGAGTTTTTTGGAAAGCTGCCGTAGCCGAGT
     CCTGGGATGCTAATGCCAATTTAAACCAAGCATGGCTCAACAATCCTTACCGTAAAGGTG
                                                                                                                                                                                                                                                                                                                                    AACGGACAGGAACCCGTTGTTTAACGGTGATAAATGCCGATCTGGAATATGATGTTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                    TGAAGCAGTATCTGGCATTGTGTCAACGCATTATCGATGAAGGTGAATGGATTGATAATA
                                                                    AGGATGACATGGGACGCGTGTATGGTGTTCAGGGTAGAGCTTGGGCTAAGCCTGATGGTG
                                                                                                                                     CGTGGAACGCGAATGCTAATGAAAATAGCGCATGGTTAAATAATCCGCATCGTAAGGGTG
                                                                                                                                                                                                    TATTAGGGTACTTACGTGGTTATGATAATGCAGCACAATTTCGTGCTATTGGCTGTAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zyskind,
Wall, Dau
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Carr, Grant
Yamamoto, Robert
Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ohlsen, Kari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.9%; ilarity 67.3%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mirabilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 403.8; DB 13;
Pred. No. 4e-122;
0; Mismatches 277;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     See File Wrapper or PALM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                   1259
                                                                                                                                                                                                                                                                                                      1019
                                                                      361
      421
                                                                                                      1199
                                                                                                                                                                    1139
                                                                                                                                                                                                      241
                                                                                                                                                                                                                                     1079
                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                     959
                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                       301
                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                      899
```

```
APPLICANT: Forsyth, R. Allyn
APPLICANT: Ohlsen, Kari L.
APPLICANT: Oyskind, Judith W.
TITLE OF INVENTION: Genes identified as required for TITLE OF INVENTION: proliferation of E. coli
FILE REFERENCE: ELITRA.009A
CURRENT APPLICATION NUMBER: US/09/741,669
CURRENT FILING DATE: 2000-12-19
PRIOR APPLICATION NUMBER: US 60/173005
PRIOR FILING DATE: 1999-12-23
NUMBER OF SEQ ID NOS: 481
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 8
US-09-741-669-182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 182, Application US/09741669 Patent No. US20020022718A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                           FEATURE: CDS
NAME/KEY: CDS
LOCATION: (1)...(876)
-09-741-669-182
                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 876
TYPE: DNA
ORGANISM: Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID NO 182
                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            542
                                               61
                                                                                                                                                                             14
                                                                                          74
    GCCAATCGCCGAGCGGATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTG
                                                                                       CTAGCGGTGCGCTGGTATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTG
                                                                                                                                                                  ATGCCTCAGGGTTATCTGCAGTTTCCCAATATTGACCCCGTATTGTTTTTCGATCGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGTGATGTGCCCTTGGGGTTTGAATTTCAACATGGTGCAGGTTTATGTGTTCCTTGCGC
                                                                                                                                    ATGACCAGTAGCTATCTGCATTTTCCGGAGTTTGATCCGGTCATTTTCTCAATAGGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACGGT 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCAGT 1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACTTTGGATGATTTTGACGTCACCGGATATCAGTTCCACGATCCTATTCAATACCCGT 1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCGCCTCAGTTCCATATCAATCCAAAGATTAAAACACTGCAGGATTTGGAAACTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACATTTATGAGAACCAATTACCTCTGATGCGTGATGTTCAACTAAAAAGAGAGCCATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACATTTACCAAGATCAACTCGAATTGATGCGCGATGTGCAGCTAAAACGTGAGCCATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGATGGCACAGATCACAGGGAAAAAGCCGGGCTTGGCGTATCACAAGATCGTCAATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGTGATGTCCCATTAGGGTTGAATTTTAATCAAATTCAATGCTTTTGTATTAGTAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTACAGCCATCATTTTTCATTGCTGGGGGATACCTTGTATCTCAACAGTACTCAGCGTT 1379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGAGATAGTCACTTTTTATAATCCCGGAGAAACAGCGTTAGGGTGTTTACGTCCATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGAAATTCTTAACTTCTACAATCCGGGTGAATTTCACATGGGGTGTTTGCGCCCCTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCACGACAGATGACTTTAGTGTTGAAGGTTATCAGTGTCACGAGGCGATAAAATACCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGTGGCTCAAATCACAGGGCATAAACCAGGTAAAAGCATTCCATAAGATAGTTAATGCTC
                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                            8.5%;
                                                                                                                                                                                                                        ٥,
                                                                                                                                                                                                                        Score 248.2; DB 9;
Pred. No. 1.7e-70;
0; Mismatches 288;
                                                                                                                                                                                                                                                                Length 876;
                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                          69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1319
                                                                                                                                    60
                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                          Sequence 1, Application US/09790988

Patent No. US20020127687A1

GENERAL INFORMATION:
APPLICANT: SHIGENOBU, SHUJI
APPLICANT: WATANABE, HIDEMI
APPLICANT: WATANABE, HIDEMI
APPLICANT: SAKAKI, YOSHIYUKI
TITLE OF INVENTION: GENOME DNA OF BACTERIAL SYMBIONT OF APHIDS
FILE REFERENCE: 081356/0159
CURRENT APPLICATION NUMBER: US/09/790,988
CURRENT FILING DATE: 2001-02-23
PRIOR APPLICATION NUMBER: JP2000-107160
PRIOR FILING DATE: 2000-04-07
NUMBER OF SEQ ID NOS: 7
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 9
US-09-790-988-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
LENGTH: 640681
TYPE: DNA
ORGANISM: Buchnera sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841 GCATATCGTCGCAGCCCACAGCAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   194 TTATTCGCCGGCTTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTAC 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGCAGTGGCAATCCATTTTCGACACTTACGGTGTGCTGCCGCGCCACCCATCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGTTTGCCATGCTGTTCCCTGGCTCCCGTACAGAAGATATTTTGCTGCTGCAAACCAAC 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAACGTTCCTTCCTAGGTCTCTGATTTTATCGCACCACTCATTCCGTTTTGGTCTTGGT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAACGCACCTTCTTTGGTGGGCCGATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTTACAAGCGCGGTTTGTATCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCAATGGGGCAAATCCTCTCCTTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTGTGGAATACGTCCGTGAGCCAGATGCTCAGTTG----GGTCTGTTTGGTGGCCTTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTCGTCCGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCCTTGGGCTTTTGTATTCCCTAATGGTGGCCACTGCCGCGCCATCCTTCACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGGGCGTCTGGGCAACTTTATTAACGGTGAATTGTGGGGCCGCGTTGACCCGAACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGGGACGTATCGGTAACTTTATGAATAGTGAACTTTTGGGGACGAGT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATTTTGATCTGTTCCTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATG 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCTATGCGGGCTTCCTCGGCGTCTTCCTCGGGGGACGTATTGGTTATGTTCTGTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAACACGACGGGCGAATCGTCCGGGCAGCGGCTGGACCAAAAATGAAGTTGAAAACTTA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCATGGGGCAAATTCTTTCCATCCCGATGATTGTCGCGGGTGTGATCATGATGGTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTGTTGAGTTTTTCCGCCAGCCCGACGCGCAGTTTACCGGTGCCTGGGTGCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCACGCCCAATGGGAGCTGTCTCAGGTTTGTTCCTGATTGGTTACGGCGCGCTTTCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACGAGCTGCTGGAAGGTGTGGTGCTGTTTATTATCCTCAACCTGTATATTCGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATGAATTCGCCTTAGAAGGCGTGGTTCTGTTCTTATTCTTAATTGGTTATTGGTAAA 607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCTTCCACGGCGGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
```

487

724

373

300

240

Ś 뭐 Š 밁 8 밁 S 맑 S 밁 Ś 밁 Ş 밁

Ş 밁 Ś 맑 S

```
RESULT 10
US-10-672-787-35
: Sequence 35, Application US/10672787
: Sequence 35, Application US/10672787
: Publication No. US20040067554A1
: GENERAL INFORMATION:
: APPLICANT: LAGACE, Robert, E.
: APPLICANT: PATTERSON, Chandra
: APPLICANT: BERG, Kim, L.
: TITLE OF INVESTION: NUCLEOTIDE SEQUENCES OF
: FILE REFERENCE: ELITRA.025C1
                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                      닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-790-988-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 432;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            479784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                480024
                                                                                                                                                                                                                                                                                                                                                                                                                                   479844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          479724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 479604
                                                                                                                                                                                                                                                                                                                                                                       479904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     479304 TTTCCTAAATTAAATCCTATAATTTTTACGATTGGTCCTGTATCTGCTCGCTGGTATGGT 479363
                                                                                                                                                                                                                                                                             689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      455
                                                                                                                                                                                                                                                                                                                                         629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35 TITCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                   CCAGATGCTCAGTTGGGTCTGTTTGGTGGCTTCATTTCAATGGGGCAAAATCCTCTCCTTA
                                                                                                                                                                                                                                                                                                         TCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAG
                                                                                                                                                                                                                                                                                                                                                                     ATTCTTCTGTTTTTATAATTTATTTTTTTTCGAAAAAAGATAGACCAACAGGTAGTATT 479963
                                                                                                                                                                                                                                                                                                                                                                                        GTGGTTCTGTTCTTTATTCTTAATTGGTTATTGGTAAACCTCGTCCGCCTAGGCAGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                AATTCTCAAAATCAAGATTTAAAAGAAATAAAAAAATATCCCGAATTACAACTATTATTA 479843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTAATAGTGAACTATGGGGTCGTGTATCACCCAATTTTTCATATGCAATGATTTTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCATGCATCGGAGGAAGAATAGGATATATTATTTTTTATAATTTTTCATATTATTCTCAA 479543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTTAGGT
                                                                                                                                                                                    CCTATGATTATTGCTGGATTAATTATTATGTATAAATCTTA
                                                                                                                                                                                                                CCTATGGTGATCATCGGTATTTTGATGATGGTTTGGTCTTA 789
                                                                                                                                                                                                                                             CCAGATCCACAAATAGGACTATTAAAAAATATAATTACTATGGGACAAATATTATCACTT 480083
                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGAATAGTGAACTTTGGGGACGAGT---AACGGATGTGCCTTTGGGCTTTTGTATTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTGATTTCATCACTCCACTAATACCTTTTGGTTTAGGCGCTGGTAGAATAGGAAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAACCAACGCACCTTCTTTGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTATGTATGTTATAAGTTTTTTATTTGCTATGTGGTATGGAAAAAAGTGCAGTATTAAA 479423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 152.2; DB 9;
Pred. No. 1.7e-36;
0; Mismatches 323;
                  읶
                 MORAXELLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 640681;
                                                                                                                                                                                      480124
                  CATARRHALIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479603
                                                                                                                                                                                                                                                                                                                                       889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94
                                                                                                                                                                                                                                                                                                                                                                                                                                 479903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
```

```
CURRENT APPLICATION NUMBER: US/10/672,787;
CURRENT FILING DATE: 2003-09-26;
PRIOR APPLICATION NUMBER: 09/596,002;
PRIOR FILING DATE: 2000-06-16;
NUMBER OF SEQ ID NOS: 41;
SOFTWARE: PERL Program
SEQ ID NO 35;
LENGTH: 96109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: DNA
; ORGANISM: Moraxella catarrhalis
US-10-672-787-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                 51367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51130 CCACAGATTAACCCTGTTGCTTTAGACTTGGGCATGATAGAGCTGCATTGGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51247 CGAACAGATTTTÁCCCCTGÁGATGGTTTTCGGATTTTGGTTTTTTTTTGGTTCAGTGGGTGTG 51306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51190 ATGTACTTATTTGCTTTTTGTGGTGGCCTATTTTTTGGCATGGGTGCGTACCAA---ATCC
                                                                                                                                                                                                                                                                                                                                                                              51307
                                                                                                                                      398
                                              458
                                                                                                                                                                                                                                                                                                                               278
                                                                                                                                                                                                                                                                                                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98 ATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 CCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCTTG
                                                                                                                                                                                                                                                                                                                                                                              ATTTTAGGTGGCCGTATTGGCTATGTACTTTTATACAATTTTTGGTGAGCTGATTGCTAAC 5136
                                                                                                                                                                                                                                                                                                                                                                                                        GTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTTGATCTGTTCCTTGCTGAC
                                                                                                                                      GATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATG
                                                                                                                                                                                                                                  GTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCCAACGCACCTTCTTTGGTGTGGCC 397
                                                                                                                                                                                                                                                                                                                     CCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCGTTATTGGGT 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGTGGTTGGACGCGTGAGCAAGTCTCTGACCTTGTTATTCGCCGGCTTTTTTAGGTGTA
AATGGCGAGCTTTGGGGACGAAT 51569
                                              AATAGTGAACTTTGGGGACGAGT 480
                                                                                            GATTTTATCGCACCCTGTGTACCAACAGGCTTATTTTTTGGGCGAATTGGGAATTTCATC
                                                                                                                                                                                    GTGTTGCTTGCCATGTGGTATTTTGCACATAAATATAAAAAAGCACCCTTTACGGTACTG
                                                                                                                                                                                                                                                                                 CCTTTATATCTTTTTCGAGTATGGGAAGGGGCATGAGTTTTCATGGTGGATTTGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.9%;
ilarity 59.1%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 142.2; DB 1
Pred. No. 8.5e-34;
0; Mismatches 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                        457
                                                                                                                                                                                                                                                                                 51426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                       51486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲.
```

```
RESULT 11

US-10-297-465A-1/c
Sequence 1, Application US/10297465A
Publication No. US20040142413A1
GENERAL INFORMATION:
APPLICANT: Simpson, Andrew
APPLICANT: Reinach, Fernando
APPLICANT: Medianis, Joao
APPLICANT: Medianis, Joao
APPLICANT: Medianis, Joao
APPLICANT: Farrida, Paulo
TITLE OF INVENTION: Isolated Genome of Xylella Fastidiosa and Uses Thereof
FILE REFERENCE: FAPESP 202 US (10213376)
CURRENT APPLICATION NUMBER: US/10/297,465A
CURRENT FILING DATE: 2001-06-07
PRIOR APPLICATION NUMBER: FCT/IB01/01618
PRIOR PILING DATE: 2001-06-07
PRIOR APPLICATION NUMBER: 60/209,906
PRIOR FILING DATE: 2001-06-17
NUMBER OF SEQ ID NOS: 1
SOSTWARE: PatentIn version 3.2
SEQ ID NO 1
LENGTH: 2731748
TYPE: DNA
ORGANISM: Xylella fastidiosa
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 12
US-10-152-319A-1589/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-297-465A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1589, Application US/10152319A Publication No. US20040072160A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 261;
                   PRIOR
                                                                                                                                                                                                                                                                        PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Mendrick, Donna
APPLICANT: Porter, Mark
APPLICANT: Johnson, Kory
                                                                                                                                                                                                                              PRIOR PRIOR
                                                                                                                                                                                                                                                                                                               FILE REFERENCE: 44921-5089-US
CURRENT APPLICATION NUMBER: US/10/152,319A
CURRENT FILING DATE: 2002-05-22
                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Higgs, Brandon
APPLICANT: Castle, Arthur
APPLICANT: Elashoff, Michael
TITLE OF INVENTION: Molecular Toxicology Modeling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2214008 GTGCT 2214004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2214248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2214368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                  FILING DATE: 2001-07-10
APPLICATION NUMBER: US 60/303,807
FILING DATE: 2001-07-10
APPLICATION NUMBER: US 60/303,808
FILING DATE: 2001-07-10
APPLICATION NUMBER: US 60/315,047
                                                                                                                                                                                     APPLICATION NUMBER: US 60/297,523
FILING DATE: 2001-66-13
APPLICATION NUMBER: US 60/298,925
FILING DATE: 2001-06-19
                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 60/292,335 FILING DATE: 2001-05-22
APPLICATION
                     FILING DATE: 2001-08-
                                                                                                                                                                   APPLICATION NUMBER: US 60/303,810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGGTATGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCATCGGCGGTGAGCTTTGGGGCAAGCTCACCCACAATGGCTGGGGAGTAATTTTCCCCGC 2214009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTGGGCTTTTGTATTCCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCTTGATTTCGGCGCACCACTGGTCCCCGTGGGCTTTGGGTTTTGGTCGGCTTGGCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCCGATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGGCGTCCTACTGGCAGTCGCTTGGTGGAGTCGGCGTCATCGCCTGCAGATGTTCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGĀACCATTGCTGCTGTTTCGAGTGTGGGGAAGGGGCATGAGCTTTCATGGAGGTTTGA 2214189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGTGGTGTTGGGTGGCCGTGTGGGTTACATGCTGTTCTATGCGTTCCATGACTTCTTGC 2214249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGTTTGCTTGGTGTCAACATGGATGGTTTTTCCGACCTGTTGTTCTACGCGATGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGGCAG---TGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGATGTATTTGGCAAGTTTTTGGGGCGGCGTGGTGCTTGGGACGCCAACGCATCCAGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCGGATCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCACGCTATCGATCCGATTGCTTTCTCACTTGGTCCGGTGAAGGTGCATTGGTATGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAAACCAACGCACCTTCTTTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      517
NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.0%;
60/324,928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 115.4;
Pred. No. 8e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 221; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2731748;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2214129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2214429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2214069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2214309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2214369
             PRIOR APPLICATION NUMBER: US 60/303,807
PRIOR FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: US 60/303,808
PRIOR APPLICATION NUMBER: US 60/315,047
PRIOR APPLICATION NUMBER: US 60/315,047
PRIOR FILING DATE: 2001-08-28
PRIOR APPLICATION NUMBER: US 60/324,928
PRIOR APPLICATION NUMBER: US 60/324,928
PRIOR FILING DATE: 2001-09-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-152-319A-1988/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-152-319A-1589
                                                                                                                                                                              FILE REFERENCE: 44921-5089-US
CURRENT APPLICATION NUMBER: US/10/152,319A
CURRENT FILING DATE 2002-05-22
PRIOR APPLICATION NUMBER: US 60/292,335
PRIOR APPLICATION NUMBER: US 60/297,523
PRIOR FILING DATE: 2001-06-13
PRIOR FILING DATE: 2001-06-13
PRIOR APPLICATION NUMBER: US 60/298,925
PRIOR APPLICATION NUMBER: US 60/298,925
PRIOR APPLICATION NUMBER: US 60/303,810
PRIOR APPLICATION NUMBER: US 60/303,810
PRIOR APPLICATION NUMBER: US 60/303,810
PRIOR FILING DATE: 2001-07-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1988, Application US/10152319A
Publication No. US20040072160A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 1589
LENGTH: 2440
                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Higgs, Brandon
APPLICANT: Castle, Arthur
APPLICANT: Elashoff, Michael
APPLICANT: Elashoff, Michael
TITLE OF INVENTION: Molecular Toxicology Modeling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Mendrick, APPLICANT: Porter, N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Remaining Prior Application data removed - NUMBER OF SEQ ID NOS: 2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: US 60/330,462 PRIOR FILING DATE: 2001-10-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match 2.9%;
Local Similarity 58.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 2001-09-27
APPLICATION NUMBER: US 60/330,867
FILING DATE: 2001-11-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2480 TCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        526 ACTGTCACCAGGATTCCCACCACCAGCCCTGCCACTGGGTTGGA 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAATCAGT 2716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGG---TTTCAACCGGT 2656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCAGGGGCAGCAGACAGACAGCCAGTTAAAGCAGTCATGCACTGTTGCCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGCCAGAGGAGACCATGCTGACAATGATGGATGTCGAGGTGCTGGAGCTCTGCACCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ĠTGAĊAGAGĠTCĊĊGATGTTĠĠAGĊĊĊATGATTATCĠĠAATGĠĊĠĠAGCTCAĊCTCĊAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCAAAAGCCCGCCTGAAGTCAGTCCTGTCCCCCGCCTGCATCAGGGCCACAATGGTGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Johnson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Porter, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genbank Accession No. NM_013030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Donna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 84; DB 12; Length 244 Pred. No. 1.1e-15; Mismatches 115; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         See File Wrapper or PALM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 2440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

527

707 2539

```
CURRENT APPLICATION NUMBER: US/10/276,774
CURRENT FILING DATE: 2002-11-18
PRIOR APPLICATION NUMBER: 09/560,875
PRIOR FILING DATE: 2000-04-27
PRIOR APPLICATION NUMBER: 09/496,914
PRIOR FILING DATE: 2000-02-03
NUMBER OF SEQ ID NOS: 2700
SOPTWARE: Custom
SQ ID NO 1331
LENGTH: 2208
TYPE: DNA
                                                                      В
밁
                         ঠ
                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-276-774-1331/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-152-319A-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1331, Application US/10276774 Publication No. US20040053245A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Remaining Prior Application data removed NUMBER OF SEQ ID NOS: 2221
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 1988
LENGTH: 3950
                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Homo sapiens
-10-276-774-1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Hyseq, Inc.
APPLICANT: Tang, Y, Tom et al
TITLE OF INVENTION: No. US20040053245Alel Nucleic Acids
FILE REFERENCE: 21272-030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 2001-11-01
PRIOR APPLICATION NUMBER: US 60/330,462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: Genbank Accession No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Rattus norvegicus
                                                                                                                                               / Match 2.6%;
Local Similarity 56.0%;
les 164; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 2001-10-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2480 TCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTG 2539
678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           724
TCCTGCAAAAGCTCTTCTGAACTCACTCCGATCTCCCACCTGCATGAGCGCAACAATAGT
                                 ACTGGCGAAAGCACGGCGAAAACTCTTCTTTACAGCGCATATGGCCAAAGGCTGACGAGAGT 2595
                                                                        CACCTCCACGGCAAGAGCACCAACACGGACAGCCAGTTGAAGAAGTCATGGACAGTGGC
                                                                                                           CATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTGGC 2535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTGTCACCAGCACCCCTATCACAAGTCCAGCCACAGGATTAGACATAA 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAATCAGT 2716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAAC---CGGT 2656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAAATGCCCTTCTGAACTCATTTCTGTCTCCTGCCTGCATAAGTGCCACAATCGTGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCCAAGGCTGACGAGAGTATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCAGAGGTAAGAGCACCAACACAGAGAGCCAGTTGAAGAAGTCATGGACAGTAGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGGAGGAGGCAACCATGCTGACGATGATTGACGAGGACGTGCTGGAGCTTTGCACCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGATGGAGGTCCCGATGTTAGCACCCATGATGATGGGGATGGCAGCGCGGACTGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56.7%;
                                                                                                                                               ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٥,
                                                                                                                                                                Score 75.4; DB 13;
Pred. No. 7.6e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 77.8; DB 12; Pred. No. 1.9e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches 122;
                                                                                                                                                 Mismatches 126;

    See File Wrapper or PALM

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NM_053380
                                                                                                                                                 Indels
                                                                                                                                                                                  Length 2208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Polypeptides
                                                                                                                                               ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                 Gaps
                                                                      679
619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         665
```

```
APPLICANT: Bos Biotechnology, Inc.
TITLE OF INVENTION: Methods of Diagnosis of Ovarian Cancer, Compositions
TITLE OF INVENTION: And Methods of Screening for Modulators of Ovarian
TITLE OF INVENTION: Cancer
FILE REFERENCE: 018501-002420US
CURRENT APPLICATION NUMBER: US/10/173,999
CURRENT FILING DATE: 2002-06-17
PRIOR APPLICATION NUMBER: US 60/299,234
PRIOR APPLICATION NUMBER: US 60/299,234
PRIOR APPLICATION NUMBER: US 60/315,287
PRIOR FILING DATE: 2001-08-18
PRIOR APPLICATION NUMBER: US 60/315,287
PRIOR FILING DATE: 2001-08-27
PRIOR APPLICATION NUMBER: US 60/315,287
PRIOR APPLICATION NUMBER: US 60/372,246
PRIOR FILING DATE: 2001-04-12
NUMBER OF SEQ ID NOS: 163
COLUMBER OF SEQ ID NOS: 163
                                                                                             밁
                                                                                                                                            Ś
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-173-999-149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-173-999-149/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 164; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn Ver.
SEQ ID NO 149
LENGTH: 2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 149, Application US/10173999
Publication No. US20040005563A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Mack, David H. APPLICANT: Gish, Kurt C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo
                                                                                                                                                                                                                                                 2596
                                                                                                                                                                                                                                                                                                                                                 2536
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2476 CATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAATCGTGGATGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2655 --GTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAAT 2712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2596 ATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACCG- 2654
                                                                                               591
                                                                                                                                                                                               651
531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       498
                                                                                                  GAGCAATGAAGAGGACACCATGCTGACAACGATGGACGTTGAAGGTGCTGGAGCTCTGCAC
                                                                                                                                                                                                                                              ATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACCG-
                                                                                                                                                                                                                                                                                                  TCCTGCAAAAGCTCTTCTGAACTCACTCCGATCTCCCACCTGCATGAGCGCAACAATAGT
                                                                                                                                                                                                                                                                                                                                              ACTGGCGAAAGCACGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGCAATGAAGAGGACACCATGCTGACAACGATGGACGTTGAGGTGCTGGAGCTCTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTGGTGATTGACGTTCCAATGTTTGGCCCCCATGATAATGGGGATGGCAGCCCGAACAGT 559
CAAGACGGTCACCAGCACCCCGATCACCAGCCCCAACAAAGGGTTGGACATAA
                                              --GTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAAT 2712
                                                                                                                                                                                               GTTGGTGATTGACGTTCCAATGTTGGCCCCCCATGATAATGGGGATGGCAGCCCGAACAGT
                                                                                                                                                                                                                                                                                                                                                                                                  CACCTCCACGGGCAAGAGCACCAACACGGACAGCCAGTTGAAGAAGTCATGGACAGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAGACGGTCACCAGCACCCCGATCACCAGCCCCAACAAAGGGTTGGACATAA 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.6%;
56.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 75.4; DB 16; Pred. No. 7.7e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                  592
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2535
                                                                                                                                                                                                                                                                                                  652
                                                                                                                                                                                                                                                                                                                                                   2595
                                                                                                  532
                                                                                                                                                                                                                                                 2654
                                                                                                                                                                                                                                                                                                                                                                                                  712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            499
```

Search completed: July 31, 2004, 19:10:09 Job time : 903 secs

This Page Blank (University

```
Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 July 31, 2004, 12:17:10 ; Search time 4825 Seconds (without alignments)
18003.955 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-700-712A-1
2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27513289 seqs, 14931090276 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 gagaaggtttgttatgcctc.....cagcgaaatcggcgctgcag 2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
                                                                                                                                                                                                                                                          em_htc:*
gb_est1:*
gb_est2:*
gb_htc:*
gb_est3:*
                                                                                                                                                                                                                                                                                                                                                   em_estov:*
em_estpl:*
em_gss_phg:*
em_gss_vrl:*
gb_gssl:*
gb_gss2:*
                                                                                       em gss hum: *
em gss inv: *
em gss pln: *
em gss pln: *
em gss fun: *
em gss fun: *
em gss mam: *
                                                                                                                                                                                                                                                                                                                                                                                                 em_estin: *
                                                                                                                                                                                                                                                                                                                                                                                                                em_esthum:
                                                                                                                                                                                                                                                                                                                                                                                                                               em_estba:*
                                                                                                                                                                                                                             gb_est4:*
gb_est5:*
                                                                                                                                                                                                                                                                                                                                                                                   em_estmu:*
                                                                                                                                                                                                    em_estom: *
                                                                                                                                                                                                                 em_estfun:*
                                                                                                                                                                                                                                                                                                                                      estro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6 (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55026578
```

4.4 5	43	42	41	40	39	38	37	36	35	34 4	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	œ	7	o.	ហ
79.8 79.2	80.2		•	80.8	•	81.4	81.8	82	82.4	82.8	83.8	84	84.6	84.6	84.6	84.6	84.6	84.6	84.6	84.8	84.8	85		æ	89	89	92.4	96	96	96	103.2	103.8	104	106.2	111	111	111.2	115.6	5
2.7		٠				٠	٠	٠				٠		٠	٠	٠		٠				•			٠					٠		٠	٠	٠	•	٠			
974 567	1024	952	2486	945	1121	407	673	748	528	776	756	677	3128	2256	2255	976	899	606	483	712	700	683	591	524	632	522	662	801	686	589	828	813	843	855	921	878	1034	406	1375
9	12	10	11	10	드	14		13	14	14	12	14	11	H	11	13	13	10	29	14	14	10	12	14	13	13	14	14	13	13	14	14	14	14	14	14	28		
BF607905 AW108416	BM924499	BF782519	AK004832	BF783860	AK011435	CD330290	CD313851	BU055160	CD330233	CF995901	BI078307	CB420463	AK035663	AK088134	AK088606	BY746114	BY746793	AW546106	CG637075	CA373071	CA353127	AW423104	BG732886	CD336403	BW295886	BW061136	CA589861	CA588156	BW039194	BW039803	CA475083	CA588344	CA588286	CD376447	CD382942	CD379073	BZ561697	U83227	BZ553447
BP607905 MY1 00084 AW108416 um30d04.x	9	BF782519 602106535	832 Mus musc	0	5 Mus musc	290 S	3851	160 U	CD330233 StrPu537.	CF995901 AGENCOURT	307 602	593420 M		AK088134 Mus muscu	AK088606 Mus muscu		BY746793 BY746793		CG637075 OST362450	64709		AW423104 fi68d06.y	BG732886 346545 MA	6403	6 BW2958	6 BW0611	1 hab39c	6 hab47g0	4 BW0391	w	AGENCOUR	CA588344 hab50c01.	CA588286 hab49d11.	447	942	073	61697	227 U83227 Pse	53447 pacs1-60

ALIGNMENTS

0000

a

a

JOURNAL COMMENT VERSION KEYWORDS SOURCE ORGANISM RESULT 1 BZ577690 REFERENCE ACCESSION DEFINITION FEATURES TITLE AUTHORS Genome Center University of Washington Box 352145, Seattle, WA 98 Tel: 2062216954 Fax: 2066857244 1 (bases 1 to 1128)
Spencer,D.H., Raymond,C.K., Smith,E.E., Sims,E.E., Hastings,M.,
Spencer,D.H., Kaul,R. and Olsen,M.V.
Whole-Genome-Sequence variation among multiple isolates of
Psedomonas aeruginosa library
J. Bacteriol. (2002) In press
Contact: Chris K. Raymond BZ577690 1128 bp DNA linear GSS 17-DEC-2 msh2_5528.y2 msh Pseudomonas aeruginosa genomic clone msh2_5528, genomic survey sequence. Email: craymond@u.washington.edu Class: shotgun. Location/Qualifiers Pseudomonas aeruginosa Bacteria; Proteobacteria; Pseudomonas aeruginosa BZ577690.1 GI:27212751 Pseudomonadaceae; Pseudomonas. WA 98105-2145, Gammaproteobacteria; Pseudomonadales; USA GSS 17-DEC-2002

Result No.

Score

Query Match Length DB

ij

Description

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

ი

249.8 194.8 191.8 191.8

5.6 5.6 5.6

1128 805 853 1141

2288 888

BZ577690 BZ556310 BZ578932 BZ559267

BZ577690 msh2 5528 BZ556310 pacs1-60 BZ578932 msh2 6070 BZ559267 pacs2-164

isolates

e E

Hastings,

```
RESULT 2
BZ556310
                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                         ð B
                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                             유
                                                                                                                                                                 밁
                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                573
                                                                                                                                                                                                                                                                                                                                                                                                                            513
                                                                                                                                          746
                                                                                                                                                                                                          689
                                                                                                                                                                                                                                        693
                                                                                                                                                                                                                                                                     629
                                                                                                                                                                                                                                                                                                  633
                                                                                                                                                                                                                                                                                                                                 569
                                                                                                                                                                                                                                                                                                                                                                                             509
                                                                                                                                                                                                                                                                                                                                                                                                                                                         449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149
                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29
pacs1-60_5617.x1 pacs1-60 Pseudomonas aeruginosa genomic clone
pacs1-60_5617, genomic survey sequence.
                                BZ556310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCGCGCGGGCAGTGGTTGGACCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                             GTACCGATGGTGCTGGCCGGCATTGGCCTGATGGTCTGG
                                                                                                                               TTACCTATGGTGATCATCGGTATTTTGATGATGGTTTGG
                                                                                                                                                                           CCGGATGCCCAGCTCGGCTACCTCGCCTGGGGTTTGCTGACCATGGGCCAAGTGCTCTGC
                                                                                                                                                                                                   CCAGATGCTCAGTTGGG----TCTGTTTGGTGGCTTCATTTCAATGGGGCAAATCCTCTCC
                                                                                                                                                                                                                                        TC--GGCCTGNTCGTGCTGCTCNGGGATCTTCGCTTCGTCGTAATTCGTNCGCGTG
                                                                                                                                                                                                                                                                    rccegactettttaectegatacegtacattccecttccttetegaatacetcceteae
                                                                                                                                                                                                                                                                                                      GTGCCGCTGNTCGTCATCCTCTGGCTGGTCACCCGCAAGCCACGGCCGACCGCCTCGGTC
                                                                                                                                                                                                                                                                                                                       GTGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTA
                                                                                                                                                                                                                                                                                                                                                                CCCAACGGCGGCCGCTGCCGCGGCATCCCTCGCAGCTGTACCAGTTCGCCCTGGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                             CCTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                             AACTTCATCAACTCGGAACTGTGGGGCAAGGTCAGCGATGTGCCCTGGGCCATGGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTTGGGCTTTTGTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGCTGATGGACTTCATCGCCCCGCTGGTGCCCATCGGCCTGGGCGCCGGGCGCATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGACGTATCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGCTCGGCGTGATGCTGGCGGTCTGGTGGTTCGGCAAGCGCCATGGCAAGAGCTTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCGCCAACCCGACGCTGATCTTCGAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCGGCGTGATCCTCGGTGGCCGCCTGGGCTACGTGCTGCTACAACCTGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGACGTATCCCCAGATCGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:287"
/clone="msh2_5528"
/clone_ib="msh"
/note="Environmental isolate. Whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Pseudomonas
/mol_type="genomic DNA"
/strain="MSH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 249.8; DB 28; Pred. No. 1.9e-61; 0; Mismatches 301;
                                gd 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aeruginosa"
                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28;
                                                                                                             849
                                                                                                                                            784
                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        genomic shotgun
                                 GSS 17-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>ა</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152
                                                                                                                                                                                                          745
                                                                                                                                                                                                                                        750
                                                                                                                                                                                                                                                                       889
                                                                                                                                                                                                                                                                                                    692
                                                                                                                                                                                                                                                                                                                                    628
                                                                                                                                                                                                                                                                                                                                                                632
                                                                                                                                                                                                                                                                                                                                                                                              568
                                                                                                                                                                                                                                                                                                                                                                                                                             572
                                                                                                                                                                                                                                                                                                                                                                                                                                                          508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
                                        Ş
                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                             밁
                                                                                                       δ
                                                                                                                                          밁
                                                                                                                                                                   δ
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                523
                                                                                                             467
                                                                                                                                              463
                                                                                                                                                                                                                                                                       343
                                                                                                                                                                                                                                                                                                                                    283
                                                                                                                                                                                                                                                                                                                                                                227
                                                                                                                                                                                                                                                                                                                                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        103
                                                                                                                                                                           407
                                                                                                                                                                                                          403
                                                                                                                                                                                                                                        347
                                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                                                                                                              223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spencer, D.H., Raymond, C.K., Smith, E.E., Burns, J.L., Kaul, R. and Olsen, M.V. Whole-Genome-Sequence variation among my Psedomonas aeruginosa library J. Bacteriol. (2002) In press Contact: Chris K. Raymond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tel: 2062216954
Fax: 2066857244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BZ556310
BZ556310.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: craymond@u.washington.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Box 352145, Seattle,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                University of Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pseudomonadaceae; Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATCCTGTTGCGCCATCGGCCCGCTGAAGATCCACTGGTACGGGCTGATGTACCTG
                                           CCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCGTGG
                                                                                                                                                                 GCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGAATAGTGAA
                                                                                                                                                                                                                                  GCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTTGGTGTGGCCGATTTTTGTT
                                                                                                                                                                                                                                                                                              TTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGCTTATTGGGTGATCACC
                                                                                                                                                                                                                                                                                                                                                      GGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTCCTTGACCCTCTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCGGGATCGGCGCCTGGCTGGCGTCGCGCCGGATGAAGCGCTTCGACCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCCCGTATTGTTTTCGATCCGCCCTCTAGCGGTGCGCTGGTATGGCTTGATGTATTTG 106
                     CCGCGGCATCCCTCGCAGCTGTACCAGTTCGGCCTGGAAGGCGTGG
                                                                                                     CTTTGGGGACGAGTAACGGATGTGCCTTTGGGCTTTTGTATTCCCTAATGGTGGCCCACTG
                                                                                                                                              GCCCCGCTGGTGCCCATCGGCCTGGGCGCGGGGGCGCATCGGCAACTTCATCAACTCGGAA
                                                                                                                                                                                                           GCGGTCTGGTGGTTCGGCAAGCGCCATGGCAAGAGCTTCTTCCAGCTGATGGACTTCATC
                                                                                                                                                                                                                                                                       ATCTTCGAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGCCTGCTCGGCGTGATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                            TGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTTTTAGGTGTAGTGATCGGT
                                                                                CTGTGGGGGCAAGGTCAGCGATGTGCCCTGGGCCATGGTCTTCCCCAACGGCGGCCCGCTG
                                                                                                                                                                                                                                                                                                                                    GGCCGCCTGGGCTACGTGCTGTTCTACAACCTGGACGAGTACATCGCCAACCCGACGCTG
                                                                                                                                                                                                                                                                                                                                                                                              TGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCCTGCGGCGTGATCCTCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 805)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:287"
/clone="pacs1-60_5617"
/clone lib="pacs1-60"
/note="clinical isolate 1-60 Whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="1-60"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Pseudomonas
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ibrary."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:27166959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WA 98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 194.8; DB 2
Pred. No. 2.5e-45;
0; Mismatches 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            among multiple
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sims, E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
```

genomic

shotgun

Length

Ç,

Gaps

162

166

226

342

572 628

526

522 466 462 406 402

```
RESULT 3
BZ578932
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
                                                                                                           ঠ
                                                                                                                                      밁
                                                                                                                                                               ई
                                                                                                                                                                                            밁
                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                       S
              S
                                      밁
                                                              8
                                                                                         밁
                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
               449
                                       528
                                                               389
                                                                                         468
                                                                                                                  329
                                                                                                                                           408
                                                                                                                                                                    269
                                                                                                                                                                                            348
                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                       149
                                                                                                                                                                                                                                                                                                228
                                                                                                                                                                                                                                                                                                                                                   168
                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                           29
                                                                                                                                                                                                                                                                                                                                                                                                     336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Whole-Genome-Sequence variation among Psedomonas aeruginosa library J. Bacteriol. (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        msh2_6070.y2 msh Pseudomonas
genomic survey sequence.
BZ578932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               University of Washington
Box 352145, Seattle, WA 98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BZ578932.1 GI:27213993 GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tel: 2062216954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spencer, D.H., Raymond, C.K., Smith, E.E., Burns, J.L., Kaul, R. and Olsen, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pseudomonas aeruginosa
Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BZ578932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Chris K. Raymond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pseudomonadaceae; Pseudomonas.
                                                                                                                                                       CTTGCTGACCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGCGGC
                                                                                                                                                                                                                                                               GATCGCGCGGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTCGCCGGCTTT
                                                                                                                                                                                                                                                                                                                        TATESCTTSATETATTTSGTSGSTTTCCTTTTTSCTATSGSTTGSCCAATCSCCSAGCS
                                                                                                                                                                                                                                                                                                                                                                           CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTCG
AACTITATGAATAGTGAACTITGGGGACGAGTAACGGATGTGCCTTGGGCTTTTGTATTC
                                         CAGCTGATGGACTTCATCGCCCCGCTGGTGCCCCATCGGCCTGGGCGCCGGGCGCATCGGC
                                                             GGTGTGGCCGATTTTGTTGCCCCCTTTAGTGCCATTCGGTTTTGGGGATGGGACGTATCGGT
                                                                                                                                                                                                                   TTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTGATCTGTTC
                                                                                                                                                                                                                                               AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTCGCC
                                                                                                                                                                                                                                                                                                 CTGACGTATCCCCAGATCGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG
                                                                                          CTGCTCGGCGTGATGCTGGCGGTCTGGTGGTTCGGCAAGCGCCATGGCAAGAGCTTCTTC
                                                                                                                  TTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTT
                                                                                                                                                                                            TGCGGCGTGATCCTCGGTGGCCGGCCTGGGCTACGTGCTGCTTCTACAACCTGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 853)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2066857244
                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         craymond@u.washington.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Pseudomonas aeruginosa"
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="msh"
/note="Environmental isolate. Whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="msh2_6070"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain="MSH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . . 853
                                                                                                                                                                                                                                                                                                                                                                                                                60.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            lib="msh"
                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                Score 191.8;
Pred. No. 2e
                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                           .8;
.2e-44;
. 223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           multiple isolates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sims, E.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genomic
                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone msh2_6070,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSS 17-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              shotgun
                                                                                                                                                                                                                                                                                                                                                                                                    1:
                                         587
                                                                  448
                                                                                          527
                                                                                                                  388
                                                                                                                                           467
                                                                                                                                                                    328
                                                                                                                                                                                              407
                                                                                                                                                                                                                    268
                                                                                                                                                                                                                                               347
                                                                                                                                                                                                                                                                        208
                                                                                                                                                                                                                                                                                                                         148
                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                            88
                                     Ś
                                                                  밁
                                                                                         S
                                                                                                                  멼
                                                                                                                                        á
                                                                                                                                                                   뭥
                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
BZ559267/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                 389
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                     620
                                                                                                                                                                                                                      560
                                                                                                                                                                                                                                                                                           508
                                                                                                                                                                                                                                                                                                                                                                500
                                                                                                                                                                                                                                                                                                                                                                                                                                         568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pacs2-164_1355.sl pacs2-164 Pseudomonas aeruginosa
pacs2-164_1355, genomic survey sequence
BZ559267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Whole-Genome-Sequence variation Psedomonas acruginosa library J. Bacteriol. (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pseudomonas aeruginosa
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tel: 2062216954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               University of Washington
Box 352145, Seattle, WA 98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Chris K. Raymond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Spencer, D.H., Raymond, C.K., Smith, Burns, J.L., Kaul, R. and Olsen, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BZ559267.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fax: 2066857244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonadaceae;
                                                                     GGCAGCGTATCCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAATAC
                                                                                                                                                                                               TTAGAAGGCGTGGTTCTGTTCTTAATTGGTTTATTGGTTAAACCTCGTCCGCTA 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GIGGITCIGITCITIATICI 588
GCCTCGGTCTCCGGCCTGTTCGTGCTGTGCTACGGGATCTTCCGCTTCGTTGTCGAATTC
                                                                                                                                                                                                                                                                                       ATGGTCTTCCCCAACGGCGCAC-GTGCCGCGGCATCCCTCGCAGCTGTACCAGTTCGCC
                                                                                                                                                                                                                                                                                                                                                            TTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCATCGGCAACTTCATCAACTCGGAACTGTGGGGCAAGGTCAGCGATGTGCCCCTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCTTCTTCCAGCTGATGGACTTCATCGCCCCGCTGGTGCCCATCGGCCTGGGCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTTCTTTGGTGTGGCCGATTTTGTTTGCCCCTTTAGTGCCATTCGGTTTTGGGGATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTGCGCTGTTCGTCATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCAAACG-CGCCGCCGCCGCATCCCTCGCAGCTGTACCAGNTCGCCCTGGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTTCATCAACTCGGAACTGTGGGGCAAGGTCAGCGATGTGCCCCTGGGCCATGGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 1141)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     craymond@u.washington
shotgun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db xref="taxon:287"
/clone="pacs2-164 1355"
/clone lib="pacs2-164"
/note="clinical isolate 2-164
library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             strain="2-164"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 161; DB 28;
Pred. No. 2.7e-35;
0; Mismatches 145;
                                                                                                                                             regreare en contra en la compara de la compa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Smith, E.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      among multiple isolates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aeruginosa'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Whole genomic shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sims,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hastings,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-DEC-2002
mic clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    439
                                                                        679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            568
   330
                                                                                                                                                 390
                                                                                                                                                                                                                                                                                                                                                                559
                                                                                                                                                                                                                                                                                                                                                                                                                                         509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     647
                                                                                                                                                                                                                                                                                               450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N
```

S

밁 Ś

밁 5 В

383

689 443

503

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
BZ553447
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                              OR:IGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                   510
                                                                                                                      204
                                                                                                                                                        390
                                                                                                                                                                                         144
                                                                                                                                                                                                                         330
                                                                                                                                                                                                                                                                                             270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       329
                                                     264
                                                                                    450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    737
                                                                                                                                                                                                                                                           84
                                                                                                                                                                                                                                                                                                                              291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1375 bp DNA linear pacsl-60 4149.xl pacsl-60 Pseudomonas aeruginosa pacsl-60_4149, genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      University of Washington Box 352145, Seattle, WA 98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Whole-Genome-Sequence variation among multiple isolates Psedomonas aeruginosa library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Spencer, D.H., Raymond, C.K., Smith, E.E., Burns, J.L., Kaul, R. and Olsen, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BZ553447.1 GI:27159498 GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fax: 2066857244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Chris K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonadaceae; Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٠
Q
                 CTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCG
                                                                                                                        AGCTGATGGACTTCATCGCCCCGCTGGTGCCCATCGGCCTGGGCGCCGCGCCATCGGCA
                                                                                                                                                      GTGTGGCCGATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTA
                                                                                                                                                                                         TGCTCGGCGTGATGCTGGCGGTCTGGTGGTTCCGCCAAGCCGCCATGGCAAGAGCTTCTTCC
                                                                                                                                                                                                                         TATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGTAAAAACCAACGCACCTTCTTTG
                                                                                                                                                                                                                                                           TTCCTGCAGCCCCGCTGATTTTCTAGGTCTGGAAAGGCGGCATGTCCTTCCATGGCGGCC
                                                                                                                                                                                                                                                                             TTGCTGACCCTCTTTATTTTATTCAAAGTGTGGGACTGGCGGCATGTCCTTCCACGGCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCCGCGTGCCGGATGCCCAGCTCGGCTACCTCGCCTGGGGTTGGCTGACCATGGGCCAG
                                                                                 ACTTTATGAATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTTGGGCTTTTGTATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCCGTGAGCCAGATGCTCAGTTGGG----TCTGTTTGGTGGCTTCATTTCAATGGGGCAA
                                                     ACTITCATCAACTCGGAACTGTGGGGCAAGGCCAGCTATGAGCCCTGGGCCATGGTCTTCC
Bacteriol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 1375)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2062216954
                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    snorgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  craymond@u.washington.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Pseudomonas
/mol_type="genomic DNA"
/strain="1-60"
                                                                                                                                                                                                                                                                                                                                                                                                              /note="clinical isolate 1-60 Whole genomic shotgun
library."
                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="pacs1-60_4149"
/clone_lib="pacs1-60"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                         5.2%;
57.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (2002) In press
K. Raymond
                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                           Score 152; DB 28;
Pred. No. 1.3e-32;
                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                              210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sims, E.
                                                                                                                                                                                                                                                                                                                                                           Length 1375;
                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hastings, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSS 17-DEC-2002
                                                                                                                                                                                                                                                                                                                           ω
••
                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone
                                                                                                                                                        . 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       736
                                                                                    509
                                                                                                                                                                                                                         389
                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                             329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       270
                   569
                                                                                                                        263
                                                                                                                                                                                        203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      210
                                                     323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
U83227
 S
                                 망
                                                             á
                                                                                                    В
                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
                                                                                                                                                                        Query Match 4.0%;
Best Local Similarity 59.8%;
Matches 234; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570
                                                                                                                                        399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       324
                                                                     459
                                     75
                                                                                                      15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Appl. Env
98432765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scripps Institution of Oceanography, UCSD 9500 Gilman Drive, La Jolla, CA 92093-0202, Email: rcaspi@ucsd.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         406 bp DNA linear GSS 21-FEB UB3227 Beudomonas putida MnB1; ATCC 23483 Pseudomonas putida Genomic clone transposon-tagged mutant UTS02 similar to prolipoprotein diacylglyceryl transferase (lgt), genomic surve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 406)
Caspi, R., Tebo, B.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pseudomonas putida
Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                 This sequence was obtained by automated sequencing of the DNA. It was NOT confirmed by sequencing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Caspi
MBRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9758766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MnB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        c-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pseudomonas putida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           U83227.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pseudomonadaceae; Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                            Therefore, some mistakes might
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGC
                                                             ATAGTGAACTTTGGGGACGAGTAACGGATGTGCCTTTGGGCTTTTGTATTCCC------
                                                                                                        ATTTCGTTGCCCCGCTGGTGCCGATCGGCNTGGGTGCCGGGCGTATCGGCAACTTCATCA
                                                                                                                                   ATTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGACGTATCGGTAACTTTATGA 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGCCTGTTCGTGCTGCTACCGGATCTACCGCTTTGATGGCGAATTCGACCGTGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGCACTGTTCGTCATCCTCTGGCTGGCCACCCCGATGCCACGGTCGACCGCCTTGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTTCTGTTCTTTATTCTTAATTGGTTTATTGGTAAACCTCGTCCGCTAGGCAGCGTAT 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAACGGCGGCCGCCGCGCGCATCCCTCGAAGTTGTACCAGTTCGCCCTGAAAGGCC
 -TAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAATTCGCCTTAGAAGGCG
                                     ACGCCGAGCTGTGGGGCAAACCCACCGACGTGCCATGGGCGATGATCTTCCCGCCGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACCTATEGTGATCATCGGTATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCATGCCCAGCTCGTCTACCTCGACTGAGGTTGGCTGACCATGGGCCAAGAGCTGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Environ.
                                                                                                                                                                                                                                                                                                                                                                                                                transposon-tagged
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cytochromes and manganese oxidation in Pseudomonas
                                                                                                                                                                                                                                                         /clone="transposon-tagged mutant UT502"
/clone_lib="Pseudomonas putida MnB1; ATCC
/note="manganese oxidizing bacterium"
                                                                                                                                                                                                                                                                                                                           /organism="Pseudomonas putida"
/mol_type="genomic DNA"
/strain="MnB1; ATCC 23483"
                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:1786113
                                                                                                                                                                                                                                                                                                            'db_xref="taxon:303"
                                                                                                                                                                                                                                                                                                                                                                                .406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Microbiol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and Haygood, M.G.
                                                                                                                                                                        0,
                                                                                                                                                                      Score 115.6; DB 29; Length Pred. No. 3.8e-22; O; Mismatches 145; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (10),
                                                                                                                                                                                                                                                                                                                                                                                                                              be present.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3549-3555
                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genomic survey
                                                                                                                                                                                                           406;
```

GSS 21-FEB-2001

second from one strand

strand

12;

Gaps

134 510 74

Ś

В Ś В

á 밁 á

밁 Ś

```
RESULT 7
BZ561697
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                       Ş
                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
밁
                                                                                          ş
                                                                                                                               밁
                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                             Query Match
Best Local S
Matches 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                           Bource
                              149
                                                               430
                                                                                                                               370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          690 CAGATGCTCAGTTGGG---TCTGTTTGGTGGCTTCATTTCAATGGGGCAAATCCTCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              135
490
                                                                                                                                                                                             342;
                                                                                               69
                                                                                                                                                              29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BZ561697 1034 bp DNA linear pacs2-164 Beeudomonas aeruginosa pacs2-164 3389.y2 pacs2-164 Pseudomonas aeruginosa pacs2-164 3389, genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Whole-Genome-Sequence variation among multiple Psedomonas aeruginosa library
J. Bacteriol. (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: craymond Class: shotgun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           University of Washington
Box 352145, Seattle, WA 98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spencer, D.H., Raymond, C.K., Smith, E.E., Burns, J.L., Kaul, R. and Olsen, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Chris K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BZ561697.1 GI:27182207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BZ561697
                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonadaceae; Pseudomonas.
1 (bases 1 to 1034)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGACCCAGCCCACCACCCCCCCCCCGCCGCCGCCCTGGAGGGCC
                                                                                   TATGGCTTGATGTATTTGGTGGGTTTCCTTTTTGCTATGTGGTTGGCCAATCGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGGACTGTTTTTAGCTGGATACGGTACATTCCGCTTCCTTGTGGAATACGTCCGTGAGC
AAGCGCTTCGACCCGACCTGGACCAAGGAGCGCCTTTCCGACCTGGTCTTCTGGGTTCGC
                            GATCGCGCGGCAGTGGTTGGACGCGTGAGCAAGTCTCTGACTTGTTATTC---GCCGGC
                                                               CTGACGTATCCCCAGATCGATCCGGTTGCGCTGGCCATCGGCCCGCTGAAGATCCACTGG
                                                                                                                                                              CTGCAGTTTCCCAATATTGACCCCGTATTGTTTTCGATCGGCCCTCTAGCGGTGCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACCTATGGTGATCATCGGTATTTTGATGAT 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGGCATGTTCGCGCTGTTCTACGGCATCTTCCGCCTTCATCGTCGAATTCGTGCGGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGCACTGTTCGTCATCCTCTGGCTGTTCTCGCGCAAGCCGCCGACCATGGCGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTTCTGTTCTTTATTCTTAATTGGTTATTGGTAAACCTCGTCCGCTAGGCAGCGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCCGATGATCCTGGCTGGCCTTGGCCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGATGCCCAGCTGGGCTATATCGCCTGGGGCTGGCTGACCATGGGTCAGATTCTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2066857244
                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2062216954
                                                                                                                                                                                                                                                                                                                                                                                                                                                         craymond@u.washington.edu
                                                                                                                                                                                                                                                                          /clone="pacs2-164 3389"
/clone lib="pacs2-164"
/note="clinical isolate 2-164 Whole library."
                                                                                                                                                                                                                                                                                                                                                           /mol_type="genomic DNA"
/strain="2-164"
                                                                                                                                                                                                                                                                                                                                              db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                            organism="Pseudomonas aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                            location/Qualifiers
                                                                                                                                                                                                            3.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Raymond
                                                                                                                                                                                             0;
                                                                                                                                                                                             Score 111.2; DB 2
Pred. No. 1.2e-20;
0; Mismatches 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                               278;
                                                                                                                                                                                                                             28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sims, E.E.,
                                                                                                                                                                                               Indels
                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                            genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               isolates
                                                                                                                                                                                                                             1034;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic clone
                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SSD
                                                                                                                                                                                                                                                                                              shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-DEC-2002
                                                                                                                                                                                             Gaps
                              205
                                                               489
                                                                                               148
                                                                                                                               429
                                                                                                                                                            88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              194
                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 8
CD379073/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                 ORIGIN
                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rocus
                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                              PUBMED
                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   206 TTTTTAGGTGTAGTGATCGGTGGCCGAGTTGGTTATGTGATCTTCTACAATTTTTGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         878 bp mRNA 1
PTMM04242 Phaeodactylum tricornutum Uni-Zap
tricornutum cDNA 5', mRNA sequence.
CD379073
                                                                                                                                                                                        Laboratory of Molecular Plant Biology
Stazione Zoologica 'Anton Dohrn'
Villa Comunale, I.80121, Napoli, Italy
Tel: 39 081 583 3268/3211
Fax: 39 081 764 1355
Email: chris@alpha.szn.it
Diatom EST Database(http://avesthagen.sznbowler.com)
Seq primer: T3 backward
                                                                                                                                                                                                                                                                                                                                                                       Phaeodactylum tricornutum
Phaeodactylum tricornutum
Phaeodactylum tricornutum
Bukaryota; stramenopiles; Bacillariophyta; Bacillariophyceae;
Bucillariophycidae; Naviculales; Phaeodactylaceae; Phaeodactylum.

1 (bases 1 to 878)
Scala, S., Carels, N., Falciatore, A., Chiusano, M.L. and Bowler, C.
Genome properties of the diatom Phaeodactylum tricornutum
Plant Physiol. 129 (3), 993-1002 (2002)
                                                                                                                                                                             Seq primer POLYA=Yes.
                                                                                                                                                                                                                                                                                                                             Contact: Bowler C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CD379073.1
                                                                                                                                                                                                                                                                                                                                              12114555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGCGGCGTGATCCTCCGGTGGCCGCCTGGGCTACGTGCTGCTACAACCTGGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCATTGGGAAACTTTTATAACTGGAACTTGTGGGCGAAGGTCAATCGATGGGCCCCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCCGCCCTTGGTTTCCGTCCTTTTCCGGCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTAGGCAGCGTATCCGGACTGTTTTTAGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCTTAGAAGGCGTGGTTCTGTTA--TTCTTAATTGGTTTATTGGTAAACCTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGGGCTTTCCCCAACGTCGGCCCCTTTCCGGGGCATCCCTTACAATTGTCCCAATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTTTGTATTCCCTAATGGTGGCCCACTGCCGCGCCATCCTTCACAGCTTTATGAA-TTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTATCGGTAACTTTATGAATAGTGAACTTTGGGGACGAG---TAACGGATGTGCCTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTGGTGTGGCCGA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCTGCTCGGCGTGATGCTGGCGGTCTGGTTTGGTTTCGGCAGGCGCCATGGCAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCTTATTGGGTGTGATCACCGCCATGTTCTGGTATGCGCGCTAAAAACCAACGCACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACATCGCCAACCCGACGCTGATCTTCGAGGTCTGGGAAGGCGGCATGTCCTTTCATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCCTTGACCCCTCTTTATTTATTCAAAGTGTGGACTGGCGGCATGTCCTTCCACGGC
                                Хhо
                                          /organism="Phaeodactylum tricornutum"
|mol_type="mRNA"
|mol_type="mRNA"
|/db_xref="taxon:2850"
|cell_line="CCWP632"
|/clone_lib="Phaeodactylum tricornutum Uni-Zap |
|note="Vector: Uni-Zap XR vector; Site_l: Eco |
                                                                                                                                           j. .878
                                                                                                                                                            .ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:31254687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTTGTTGCCCCTTTAGTGCCATTCGGTTTGGGGATGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XR Phaeodactylum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 31-MAY-2003
                                               RI;
                                              Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             729
```

8 밁 á 밁 Ś g. Ş

ঠ 밁 Ś 片

294

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 9
CD382942/c
                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
MEDLINE
PUBMED
                                                        Query Match
Best Local Similarity
                                          Matches
                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2474 ATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152
                                        186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                           Laboratory of Molecular Plant Biology
Stazione Zoologica 'Anton Dohrn'
Villa Comunale, I-80121, Napoli, Ital'
Tel: 39 081 583 3268/3211
Fax: 39 081 764 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases i to 921)
Scala, S., Carels, N., Falciatore, A., Chiusano, M.L. and Bowler, C.
Genome properties of the diatom Phaeodactylum tricornutum
Plant Physiol. 129 (3), 993-1002 (2002)
                                                                                                                                                                                                                                                                                                    Email: chris@alpha.szn.it
Diatom EST Database(http://avesthagen.sznbowler.com)
Seq primer: T3 backward
POLYA=Yes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Bowler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Phaeodactylum tricornutum
Eukaryota; stramenopiles; Bacillariophyta; Bacillariophyceae;
Bacillariophycidae; Naviculales; Phaeodactylaceae; Phaeodacty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CD382942
CD382942.1 GI:31258556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTMM08112 Phaeodactylum tricornutum Uni-Zap tricornutum cDNA 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CD382942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Phaeodactylum tricornutum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGACA
     ATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGAACTITGGC 2784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGACAGCGGATCCGACCAAAGACACAACAATCGAGGTCGTTGTAGAAGAAGACTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGTTGGTGACTGAAGTACCAATATTCGCTCCCATGATCATGTAAATTCCTTTGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCACCAGCGAAAGCACGCTCGAGCTGATCCCCATCGCCCATTTGGCCCCATAGCGACGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGACTTCTACAGGAAGAAGTATGGCCACCGACAAGAAATTAAACATATCGTGGACGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACTCTCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATACAGTCGCAAGAATACCAACCATTAGACCAGCAATGGGATTCGTGTCGTCGCCGAAC
                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                               /mol_type="mRNA"
/db xref="taxon:2850"
/cb rref="CCMP632"
/ceIl line="CCMP632"
/clone lib="Phaeodactylum tricornutum Uni-Zap XR"
/note="Vector: Uni-Zap XR vector; Site_1: Eco RI; Site_2: Xho I"
                                                                                                                                                                                                                          organism="Phaeodactylum tricornutum"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                  location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.8%;
                                                        59.8%;
                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                      Score 111; DB 14;
Pred. No. 1.3e-20;
0; Mismatches 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 111; DB 14;
Pred. No. 1.2e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       921 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                              Italy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 878;
                                                                         Length
                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       XR Phaeodactylum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Phaeodactylum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST 31-MAY-2003
                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93
                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
CD376447/c
                     Ś
                                                            밁
                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FOCUS
                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                   госат
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2714
2534 GCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGA 2593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2534 GCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGA 2593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Laboratory of Molecular Plant Biology Stazione Zoologica 'Anton Dohrn' Villa Comunale, I-80121, Napoli, Italy Tel: 39 081 583 3268/3211
Fax: 39 081 764 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scala,S., Carels,N., Falciatore,A., Chiusano,M.L. and Bow
Genome properties of the diatom Phaeodactylum tricornutum
Plant Physiol. 129 (3), 993-1002 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Phaeedactylum tricornutum
Phaeedactylum tricornutum
Cukaryota; Bacillariophyteae;
Eukaryota; stramenopiles; Bacillariophyta; Bacillariophyceae;
Bacillariophycidae; Naviculales; Phaeedactylaceae; Phaeedacty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTMM01614 Phaeodactylum tricornutum tricornutum cDNA 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                Email: chris@alpha.szn.it
Diatom EST Database(http://avesthagen.sznbowler.com)
                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: T3 backward POLYA=Yes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Bowler C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12114555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CD376447.1 GI:31252061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CD376447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CD376447
                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTAACCCACCGGCAACGAGACCAATAATAGAAGTCACCGTGCTTGAGGATTGAATC 2713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGACTTCTACAGGAAGAAGTATGGCCACCGACAAGAAATTAAACATATCGTGGACGGTG
                                                            ATGACTTCTACAGGAAGAAGTATGGCCACTGACAAGAAATTAAACATATCGTGGACGGTG
                                                                                          ATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGAACTTTGGC 2784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATACAGTCGCAAGAATACCAACCATTAGACCAGCAATGGGATTCGTGTCGTCGCCGAAC 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGACAGCGGATCCGACCAAAGACACAACAATCGAGGTCGTTGTAGAAGAAGACTGGAGC 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GIGTIGGIGACIGAAGTACCAATATICGCTCCCATGATCATGTAAATTCCTTGGCGGACG 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACC 2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCACCAGCGAAAGCACGCTCGAGCTGATCCCCCATCGCCCATTTGGCCCCATAGCGACGATT 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTCTCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 855)
                                                                                                                                                                                                                          /organism="Phaeodactylum tr
/mol_type="mRNA"
/db xref="taxon: 2850"
/cell_line="CCMP632"
/clone_lib="Phaeodactylum t:
/note="Vector: Uni-Zap xR vv
Xho I"
                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                   3.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43
                                                                                                                                 Score 106.2; DB 14.
Pred. No. 3.1e-19;
D; Mismatches 128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gd 258
                                                                                                                                                                                                                                              tricornutum Uni-Zap
vector; Site_1: Eco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
```

Uni-Zap XR Phaeodactylum linear

EST 31-MAY-2003

and Bowler, C Phaeodactylum.

Ś

DB 14;

RI;

Site_2:

Indels Length

0;

Gaps

0

ð 밁 ક 문 5

S 밁

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
CA588286/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: zbrafish@watson.wustl.edu
Library materials provided by G. Elgar (UK MRC HGMP-RC) Library
constructed by Drs. K. Kawakami, M. Sasaki, S. Sugano, K. Kikuchi
and S. Watabe (University of Tokyo, Institute of Medical Science
and Laboratory of Aquatic Molecular Biology and Biotechnology) DNA
Sequencing by: Washington University Genome Sequencing Center Clone
distribution: Fugu clone distribution information can be found
through the I.M.A.G.E. Consortium/LLNL, send email to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Waterston, R. and Wilson, R. WashU Zebrafish EST Project 1998 Unpublished (1998)
Contact: Stephen L. Johnson Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. I Tel: 314 286 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Clark, M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy, S., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hab49d11.y1 Fugu UT6 adult gut Takifugu rubripes cDNA clone IMAGE:6351812 5' similar to TR:Q91237 Q91237 NA/PI COTRANSPORT SYSTEM PROTEIN. ;, mRNA sequence.
CA588286
CA588286.1 GI:25132864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes; Tetradontoidea; Tetraodontidae; Takifugu.
                                                                                                                                                                                                                                                                                                                                                                                                                                          info@image.llnl.gov
Seq primer: T3 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Takifugu rubripes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Takifugu rubripes (Fugu rubripes)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CA588286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGAACTTTGGC 2784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GIGITGGTGACTGAAGTACCAATATTCGCTCCCATGATCATGTAAATACCTTGGCGGACG 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATACAGTCGCAAGAATACCAACCATTAGACCAGCGATGGGATTCGTGTCGTCGCCGAAC 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGACAGCGGATCCGACCAAAGACACAACCAATCGAGGTAGTTTGTAGAAGACGACTGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCACCAGCGAAAGCACGCTCGAGTTGATCCCCATCGCCCATTTGGCCCCATAGCGACGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTCTCCGGC 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 843)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                    quality sequence stop: 496.
Location/Qualifiers
/dev stage="adult"
/lab_host="DH10B (T1 phage-resistant)"
/lab_host="DH10B (T1 phage-resistant)"
/clone lib="Fugu UT6 adult gut"
/note="Vector: pBluescript-FL; Site_1: PflM I
(CCANNNNNTGG); Site_2: PflM I (CCANNNNNTGG); BamHI-SmaI
sites were converted to BamHI-PflMI-SfiI-PflMI sites (Sm
is destroyed). Other part of the vector is untouched. Th
                                                                                                                                                                                                            /db_xref="taxon:31033"
/clone="IMAGE:6351812"
/tissue_type="gut"
                                                                                                                                                                                                                                                                                                                              organism="Takifugu rubripes"
                                                                                                                                                                                                                                                                                                   type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    843 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                St. Louis, MO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   204
```

S 맑 δ 밁 8 B S 밁 S 밁

2724

CCACTAAACCAATCATCAATCCTGCAATTGGGTGGG

2759

AGGACACCATGCTGACCAACAATAGAGGAGGAAGTGCTGGAGCTCTGCACGAGCACGGTGA

422

421

Query Match Best Local Similarity 2607 2427 541 661 601 198; TAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTT---CAACCGGTAACCCAC CACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTGGTCACAG GCAGAAGGATCAACACCGACAGCCAGTTAAAGAAGTCGTGGACGGTCGCCCCAGCAAAGG GTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTGGCGAAAG CGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTG AGGTCCCGATGTTGGCCCCATGATAATCGGCACCGCGGTCTGGACATCCAGTATTCCAG CCCTGCGGAACTCGTTTCGATCCCCCGCCTGCATCATGGCCACGATGGTGTTGGTGACAG GGAAGGACGTAATCAGGAACTGGGTGAACTTGTAAAGAACTCCTGTAGCCACCTCCAGAG GCAGAGGCGAAACGAGCCAGTGTGAGACTTTCTCTAAAATGCCAAACATCATTTCTAGAG Conservative cDNA is inserted between two PflMI sites in T3 (5') to T7 (3') direction. Library materials provided by G. Elgar (UK MRC HGMP-RC) and constructed and donated by Drs. K. Kawakami, M. Sasaki, S. Sugano, K. Kikuchi and S. Watabe (University of Tokyo, Institute of Medical Science and Laboratory of Aquatic Molecular Biology and Biotechnology)." 3.6%; 58.9%; 0 Score 104; DB 14; Pred. No. 1.4e-18; Mismatches Length ω •• Gaps 2723 2663 2606 2546 2486 482 542 602 662 1:

8

Matches

ORIGIN

REFERENCE AUTHORS RESULT 12 CA588344/c COMMENT ACCESSION VERSION SOURCE DEFINITION KEYWORDS ORGANISM Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; Actinopterygii; Neopterygii; Teleostei; Buteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Tetradontiformes; Tetradontoidea; Tetradontidae; Takifugu.

1 (bases 1 to 813)

2 Clark, M., Johnson, S.L., Lehrach, H., Lee, R., Li, F., Marra, M., Eddy, S., Hillier, L., Kucaba, T., Martin, J., Beck, C., Wylie, T., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Underwood, K., Steptoe, M., Theising, B., Allen, M., Bowers, Y., Person, B., Swaller, T., Gibbons, M., Pape, D., Harvey, N., Schurk, R., Ritter, E., Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R. and Wilson, R.

Waterston, R. and Wilson, R.

WashU Zebrafish EST Project 1998

LL Unpublished (1998) Email: zbrafish@watson.wustl.edu
Library materials provided by G. Blgar (UK MRC HGMP-RC) Library
constructed by Drs. K. Kawakami, M. Sasaki, S. Sugano, K. Kikuchi
and S. Watabe (University of Tokyo, Institute of Medical Science
and Laboratory of Aquatic Molecular Biology and Biotechnology) DNA
Sequencing by: Washington University Genome Sequencing Center Clone CA588344 813 bp mRNA linear EST 19-NOV-2002 hab50c01.y1 Fugu UT6 adult gut Takifugu rubripes cDNA clone IMAGE:6351745 5' similar to TR:Q91237 Q91237 NA/PI COTRANSPORT Contact: Stephen L. Johnson Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. 1 Tel: 314 286 1800 Fax: 314 286 1810 Takifugu rubripes Takifugu rubripes (Fugu CA588344.1 GI:25132922 SYSTEM PROTEIN. ;, mRNA rubripes) sequence Louis, 8

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                           CA475083/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                         SOURCE
                                                                                                                                                                                KE!WORDS
                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                       RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                2729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2432 GGCGAAACGAGCCAGTGTGAGACTTTCTCTAAAATGCCAAACATCATTTCTAGAGGTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           653
                                                                                                                                                                                                                                                                                                                                                                                                    413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       196;
                                                                                                                                                                                                                             828 bp mRNA
AGENCOURT 10670196 NCI CGAP ZKidl Danio
IMAGE:6797422 5', mRNA sequence.
CA475087
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                           Actinopterygii; Neopterygii; Tele
Cypriniformes; Cyprinidae; Danio.
1 (bases 1 to 828)
                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Actinopterygii; Neopterygii; Teleostei;
                                                                                                                                                                                                  CA475083
CA475083.1 GI:24931435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            distribution: Fugu clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL, send email to:
                                                                                                                                    Danio rerio
                                                                                                                                                      Danio rerio (zebrafish)
                                                                                                                                                                                EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     info@image.llnl.gov
Seq primer: T3 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                    ACCCCGATCACCAGCCCAGCCACAGGGTTGG 383
                                                                                                                                                                                                                                                                                                                                                                                                                                              AAACCAATCATCAATCCTGCAATTGGGTGGG 2759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCATGCTGACCACAATAGAGGAGGAAGTGCTGGAGCTCTGCACGAGCACGGTGACTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGAATCAGTGCCGTTGCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGATGTTGGCGCCCATGATAATCGGCACCGCGGTCTGGACATCCAGTATTCCAGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAATATTGGCACCCATCACCATAGGAATCGCGGTTT---CAACCGGTAACCCACCGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGAACTCGTTTCGATCCCCCGCCTGCATCATGGCCACGATGGTGTTTGGTGACAGAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGANACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGAGTATTGGTCACAGTAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGATCAACACCGACAGCCAGTTAAAGAAGTCGTGGACGGTCGCCCCAGCAAAGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTGGCACTGGCGAAAGCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACGTAATCAGGAACTGGGTGAACTTGTAAAGAACTCCTGTAGCCACCTCCAGAGGCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /dev_stage="adult"
//lab host="DH108 (T1 phage-registant)"
//clone_lib="Fugu UT6 adult gut"
//clone_lib="Fugu UT6 adult-Film I sites I sites (SmaI is tes were converted to BamHI-FfIM-Sfil-FfIMI sites (SmaI is destroyed). Other part of the vector is untouched. The cDNA is inserted between two pfIMI sites in T3 (5') to T7 (3') direction. Library materials provided by G. Elgar (UK MCC HGMP-HC) and constructed and donated by Drs. K.
Kawakami, M. Sasaki, S. Sugano, K. Kikuchi and S. Watabe (University of Tokyo, Institute of Medical Science and Laboratory of Aquatic Molecular Biology and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Biotechnology)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Takifugu rubripes"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tissue_type="gut"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     clone="IMAGE:6351745"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       xref="taxon:31033"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 103.8; | Pred. No. 1.6e | 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.6e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 14;
                                                                                      Vertebrata; Euteleostomi; Ostariophysi;
                                                                                                                                                                                                                                                                       rerio
    Gene
                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
    Collection (MGC)
                                                                                                                                                                                                                                                                       cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                813;
                                                                                                                                                                                                                                                                                           EST 12-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2551
                                             REFERENCE
AUTHORS
                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                                                       RESULT 14
BW039803/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       401
                                                                                                                                                                                                                                                                                                                                                                                                    221
                         Satou, Y.,
Satoh, N.
                                    Eukaryota; Metazoa; Chordata; Urochordata; Ascidiaces
Phlebobranchia; Cionidae; Ciona.
1 (bases 1 to 685)
Satou, Y., Satake, M., Azumi, K., Nonaka, M., Shin-i, T.,
                                                                                                                                                                                                  BW039803.1
                                                                                                                                                                                                                                             685 bp mRNA linear EBW039803 Nori Satoh unpublished cDNA library, blood cintestinalis cDNA clone cibd041k19 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Leonard I. Zon, M.D.

cDNA Library Preparation: Invitrogen Corp

cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Agencourt Bioscience Corporation

Clone distribution: MGC clone distribution information can
                                                                                                                                    Ciona intestinalis
                                                                                                                                                                                EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     High quality sequence stop: 433.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1999)
Contact: Robert St
  Expressed
                                                                                                                                                           Ciona intestinalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Plate: LLAM14310 row: k column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGACGAGAGTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCG
                                                                                                                                                                                                                                                                                                                                                                                                    AGAACCGCA 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAAATTCA 2770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATCCCACATCCAGCAATCCAGAGGAAACCAGACTGACAACAATGGAGGTAGAAGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCACGATGGTGTGACAGATGTGCCAATGTTTGAGCCCATGATGATGGGGATGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCACTGTGGCACCAGCAAAAGCTCGTNTGAACTCCTCTCTCTCCCCTGCCTGCATCAGA 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGCCAAACATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAACTTTGCACGAGGACAGTAACCAGTATTCCCACCACCAGTCCCGCCACAGGGTTAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTT---TCAACCGGTAACCCACCGGCAACGAGACCAACAATAATAGAAGTCACCGTGCTT 2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGATGGTGGCACTGGCGAAAAGCACGGCGAAAACTCTTTTTACAGCGCATATGGCCAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGCCTGTGATGGTTTCCAGCGGCAGCAGCACCAGCACTGACAGCCAGTTAAAGCAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /mol_type="mRNA"

/db_xref="taxon:7955"

/db_xref="taxon:7955"

/clone="IMAGE:6797422"

/lab_host="PH108 (T1-resistant)"

/clone lib="MCI CGAP_ZKid1"

/clone lib="CI CGAP_ZKid1"

/clone lib="CI CGAP_ZKid1"

/cloned windirectionally. Primer:
EcoRV; Site 2: Not1; Cloned unidirectionally. Primer:
Oligo dT. Average insert size 1.8 kb. Constructed by J.
Wang (Research Genetics, Invitrogen Corp) from tissue donated by L. Zon (Harvard University). Note: this is a NCI_CGAP Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
  genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Danio rerio"
                                                                                                                                                                                                      GI:24140498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.5%;
    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Strausberg, Ph.D.
      Ciona
                                                                                                             Chordata; Urochordata; Ascidiacea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 103.2; DB 1
Pred. No. 2.4e-18;
0; Mismatches 119
    intestinalis (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                       cells Ciona
                                                                                                                                                                                                                                                                                             EST 19-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         w
T
                                                                                                                Enterogona;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     эď
```

342

2644

2584 462 2524

Ś В 5 8 Ş 밁 Ş 밁 8 밁 S

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
BW039194/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
COMMENT
                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                KEYWORDS
FEATURES
                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 3.3%;
Best Local Similarity 56.5%;
Matches 199; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2474 ATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAATCGTGGATGGTG 2533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     436
                                                                                                                                                                                                                                                                                                                                                                  686 bp mRNA linear EST 19-OCT-2002 BW039194 Nori Satoh unpublished cDNA library, blood cells Ciona intestinalis cDNA clone cibd039004 5', mRNA sequence.
                                Kyoto University
Sakyo-ku, Kyoto, Kyoto 606-8502,
Tel: 81-75-753-4081
Fax: 81-75-705-1113
                                                                                                      Expressed genes in Ciona
Unpublished (2002)
Contact: Nori Satoh
Department of Zoology
                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea;
Phlebobranchia; Cionidae; Ciona.
1 (Dases 1 to 686)
Satou,Y., Satake,M., Azumi,K., Nonaka,M., Shin-i,T., Ko
                                                                                                                                                                                                                                                                       Ciona intestinalis
Ciona intestinalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kyoto University
Sakyo-ku, Kyoto, Kyoto 606-8502,
Tel: 81-75-753-4081
                                                                                                                                                                                                                                                                                                                                 BW039194.1 GI:24139889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Nori Satoh
Department of Zoology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fax: 81-75-705-1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGACCA 2822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCAATGCGCCGCTCACCACAAGAGTGACGGTGAGGGAAGTGGTAGTGGAAGATGACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTAACCCACCG----GCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGA 2710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GIGTTTGTGATGGAAGTTCCAATGTTGGCGCCCATGACGATGGGGGATGGCGTGTTTTACA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACC 2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCCCTCGGTAGCCTTTCTGAATTCGGTTTTGCTGCGGATATGGCCAAAGGATACGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGA 2593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTTGTTCCAGTGGAAGTAAAATGAGCACTACTGCAACGTTGAAGAAATCGTGGACAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAAAAGTGTTTGTGGATTTGGCGGTGAGGACTTTGAAGGAGTTGCCAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGATGAGAGTGGACAGAATTCCTATGCAGAGGCCGGCGATGGATTTATCAGCGAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           satoh@ascidian.zool.kyoto-u.ac.jp.
Location/Qualifiers
               satch@ascidian.zool.kyoto-u.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue type="blood cells" /clone \overline{\text{lib}}="Nori Satoh unpublished cDNA library, cells"
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Ciona intestinalis"

/mol type="mRNA"

/db xref="texon:7719"

/clone="cibd041k19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 96; DB 13; 1
Pred. No. 2.8e-16;
0; Mismatches 150;
                                                                                                                                                               intestinalis (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     265
                                                                                                                                                                                                                                                        Enterogona;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    blood
                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     497
```

```
Search co
Job time
                                                                                                    S
                                                                                                                                         밁
                                                                                                                                                                        Ś
                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 199; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
completed: July 31,
me : 4830 secs
                                                                                                        2771
                                                                                                                                                                                                                                                                                                                                                                                             2534
                                                                                                                                                                                                                                                                                                                       2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2474 ATCATTTCTAGAGGTAGGAAGATCAGCACCGCGAGAAGATTGAAAAAAATCGTGGATGGTG
                                                                                                                                                                                                               435
                                                                                                                                                                                                                                                                                                                                                          555
                                                                       315
                                                                                                                                                                                                                                                                                                          GTATTGGTCACAGTAGTACCAATATTGGCACCCATCACCATAGGAATCGCGGTTTCAACC
                                                                                                        AATAGAACTTTGGCTTGATCGCCGGTTGCCCATTTAAAACCGCTGCCGACCA 2822
                                                                                                                                                                                                                                                 GGTAACCCACCG----GCAACGAGACCAACAATAATAGAAGTCACCGTGCTTGAGGATTGA 2710
                                                                                                                                                                                                                                                                                                                                                                                           GCACTGGCGAAAGCACGGCGAAACTCTTCTTTACAGCGCATATGGCCAAGGCTGACGAGA 2593
                                                                       AAAAAAGTGTTTGTGGATTTGGCGGTGAGGACTTTGAAGGAGTTGCCAAGCA
                                                                                                                                                                          GTGTTTGTGATGGAAGTTCCAATGTTGGCGCCCATGACGATGGGGGATGGCGTGTTTTACA 436
                                                                                                                                                                                                                                                                                                                                                          GCTCCCTCGGTAGCCTTTCTGAATTCGGTTTTTGCTGCGGATATGGCCAAAGGATACGATG
                                                                                                                                                                                                                                                                                                                                                                                                                               ATTTGTTCCAGTGGAAGTAAAATGAGCACTACTGCAACGTTGAAGAAATCGTGGACAGTC
                                                                                                                                             AAGATGAGAGTGGACAGAATTCCTATGCAGAGGCCGGCGATGGATTTATCAGCGAAGGAG
                                                                                                                                                                                                               GTCAATGCGCCGCTCACCACAAGAGTGACGGTGAGGGGAAGTGGTAGTGGAAGATGACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Ciona intestinalis"
/mol_type="mRNA"
/db_xref="taxon:7719"
/clone="cibd039004"
/tissue_type="blood cells"
/clone_Tib="Nori Satoh unpublished cDNA library, blood cells"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.3%;
                    2004,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
                    16:59:42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 96; DB 13; I
Pred. No. 2.8e-16;
0; Mismatches 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 686;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                         2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2533
                                                                                                                                             316
                                                                                                                                                                                                                                                                                                                                                          496
                                                                                                                                                                                                                                                                                                                                                                                                                               556
```

This Page Blank "...